# THE IRON TRADE REVIEW

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# PIG IRON SHOWS A DECIDED IMPROVEMENT

## Heavy Buying in the Middle West and Inquiries Aggregate a Large Tonnage---Finished Lines Active---Large Contracts for Rails

Iron and steel manufacturers, in all sections of the country, are encouraged by the election results, which indicate that for a time at least, there will be no further interference with the legitimate conduct of business. In some centers, consumers are showing an inclination to buy more freely and the opinion seems to be gaining strength that prospects have brightened, and the outlook for an increased volume of business during the winter months is better than it appeared to be several weeks ago.

**Pig Iron**

There has been a decided improvement in the pig iron market, inquiries being more numerous, and some large contracts have been placed. The United States Radiator Corporation, Dunkirk, N. Y., has covered its needs for the first six months of next year, and the bulk of the tonnage will be shipped by Detroit, Buffalo and Toledo furnaces. The American Steel Foundries has closed for 10,000 tons of basic for shipment during the first six months of next year to Alliance, O., and Granite City, Ill., plants, on a basis of approximately $13.50, valley furnace. This is an advance of 50 cents a ton over the price which has been prevailing for shipments the remainder of this year. An offer of $13.25 for 3,000 tons of basic, for Pittsburg delivery, has been refused. In the Chicago district, aside from the order for 7,800 tons of foundry iron placed by a Wisconsin consumer for next year's delivery, there is little activity in the iron market, although inquiries for malleable are more numerous. The Colonial Steel Co. is asking for prices on 9,000 tons of basic. In the east the Baldwin Locomotive Works has closed on its inquiry calling for from 3,000 to 6,000 tons of foundry iron. In the middle west, a furnace interest is figuring on specifications for basic and malleable aggregating 45,000 tons. Bessemer iron is firmly established at $15, valley furnace. In the south there is a deadlock between consumers and producers, buyers refusing to pay an advance over $11 a ton for next year's requirements, and the furnace interests are endeavoring to establish the price at $11.50 for shipment over this period. Pig iron stocks in Alabama have been still further increased and are now estimated at 260,000 tons. In eastern Pennsylvania two additional stacks will be blown out, and it is evident that an earnest effort is being made to further curtail production.

**Finished Material**

All finished lines show a slight improvement, and there is a pronounced increase in the new tonnage of wire products and tubes. Agricultural implement manufacturers in the middle west are ordering more freely, and the mills are receiving specifications covering shipments during the first three months of next year. Large contracts for tin plate are now being placed, and some of the idle mills are preparing to resume operations. Shading is still reported on galvanized sheets and steel plates. Structural orders for the week aggregate nearly 6,000 tons, and the inquiries now being figured on include 5,000 tons for the Boston elevated. High officials representing the Japanese government are now in this country for the purpose of placing a contract for 66 locomotives.

**Rails**

Contracts for steel rails for 1911 requirements are being more freely placed. The Louisville & Nashville railroad has closed for 29,000 tons of open-hearth rails, with the Tennessee Coal, Iron & Railroad Co., and A. Demavo & Co., railroad contractors, have placed 5,700 tons with the Carnegie Steel Co. The Norfolk & Western railroad has placed approximately 30,000 tons with the Carnegie Steel Co. and the Pennsylvania Steel Co., and the Kansas City, Mexico & Orient has closed with the Steel Corporation for 8,000 tons. The engineers of the New York Central have compiled their rail requisition, and definite action is expected in the near future.

**Unfilled Steel Corporation Tonnage**

Unfilled orders on the books of the United States Steel Corporation on Oct. 31, amounted to 2,871,949 tons. The previous low mark was 3,027,436 tons, at the close of the quarter Sept. 30, 1904. Chairman E. H. Gary issued an explanatory statement to the effect that this comparison is misleading owing to the new system of compiling unfilled tonnage now followed, which eliminates that business which passes between the various subsidiary companies of the Corporation. On the old basis, the unfilled tonnage would be 3,583,990 tons and the low mark, as of Sept. 30, 1904, estimated on the present basis, would have shown an unfilled tonnage of only 2,434,736 as against 3,027,436 tons.

# WORLD'S IRON MARKETS

## PITTSBURG

**Increased Activity in Pig Iron and Heavier Demand for Merchant Pipe.**

Office of THE IRON TRADE REVIEW,
510 Park Bldg., Nov. 15.

Encouraging developments in the iron and steel trade in this district during the week have been the increased activity in the pig iron market, heavier demand for merchant steel and the placing of large contracts for tin plate for delivery next year. Inquiries for basic pig iron involve upward of 25,000 tons. The published report of a sale of Bessemer at $14.60, valley, for first half, which later proved to be off-malleable, has given the Bessemer market a stronger tone and sales have since been made at $15, valley.

The result of the elections apparently has had little effect upon market conditions in this section. There is more inquiry for semi-finished steel for first quarter shipment, but sellers are not accepting business at today's price for delivery beyond Jan. 1. Miscellaneous business in structural steel shows a slight gain, but the market on plates is rather spotty. Car orders are being held up, the only award noted in this market is for 150 cars for the Cleveland, Akron & Columbus division of the Pennsylvania lines west. One large trunk line, which originally intended to replace 8,500 wooden freight cars with modern equipment, has decided to send the old equipment to shops for repairs and as a result this order has been held up indefinitely.

Some of the western consumers of steel bars are specifying against contracts for January, February and March deliveries and the market is firm at 1.40c, Pittsburg. There is a fair amount of new business in wire and nails, although some mills are making price concessions. Shading is also noted in some sections on blue and galvanized sheets.

Fewer reports are heard of extremely low prices on coke and there is heavier buying for delivery next year. A sale of 15,000 tons of Connellsville furnace coke, for delivery over the first six months of 1911, at $1.90, ovens, is noted. Several sliding scale contracts have been made, one of which calls for 13,000 tons a month for the year beginning Jan. 1. Negotiations will undoubtedly be closed this week for approximately 60,000 tons of furnace coke a month for periods of one and two years, beginning Jan. 1. Circular letters sent out to the trade a few weeks ago offering from 10,000 to 50,000 tons of furnace coke for November and December shipment have been withdrawn. The plan to establish a central selling agency is again being considered and will probably be discussed at the regular monthly meeting of the Connellsville Coke Producers' Association, tomorrow.

Another important development during the week was the announcement by the Pittsburg Steel Co. that it has concluded negotiations for increasing its capital stock from $6,000,000 to $14,000,000, and that the company will build two blast furnaces at its Monessen, Pa., plant.

**Pig Iron.**—A decidedly stronger tone is noted in the local pig iron market. There is heavier buying and inquiry for all grades for first quarter and first half shipment is more general. Prices of basic and foundry are firmer and Bessemer is firmly established on a basis of $15, valley, for prompt or first quarter delivery. Consumers are showing a disposition to cover for their full requirements and some large awards are anticipated. The basic situation is attracting considerable attention, written inquiries pending in this market calling for approximately 25,000 tons. The last sale, reported in this market, was made at $13, valley, while the general asking price today is from $13.50 to $13.75, valley. It is expected that there will be enough trading before the end of this week to definitely establish a market price. Inquiries, now pending, include one for 10,000 tons for delivery at Alliance, O., over the first four months of next year; 9,000 tons for a steel company near Pittsburg, over first half, and 3,000 tons for a southern Ohio interest for November and December shipment.

Investigation of a report published last week that a Pittsburg foundry interest had closed for a round tonnage of Bessemer at $15.50, delivered, or $14.60, valley, for first half, shows that the iron which figured in the deal was off-malleable, being 0.12 per cent phosphorus and 0.08 per cent sulphur. The company bought 1,600 tons of this iron from an Ohio furnace carrying a freight rate of 90 cents. The report had been in circulation for a week before it was published. Since the publication of this report an eastern consumer closed for 1,500 tons of Bessemer for first half at $15, valley, and a local interest sold 500 tons for prompt delivery at the same price.

Scattered sales of No. 2 foundry iron have been made at $14, valley, for prompt shipment, while a few sales were made during the preceding week at $13.75, valley. Negotiations involving fairly heavy tonnages of foundry iron for delivery next year, are pending. Demand for malleable and gray forge iron is light and there is comparatively little trading for either prompt or first quarter shipment. While the market has not been thoroughly tested, sellers apparently are holding prices firm. We quote the market as follows:

### Pig Iron Prices.

(Prompt Shipment.)

| | |
|---|---|
| Bessemer, valley | $15.00 |
| Bessemer, Pittsburg | 15.90 |
| Basic, valley | 13.25 |
| Basic, Pittsburg | 14.15 |
| No. 2 foundry, Pittsburg | 14.65 |
| Gray forge, Pittsburg | 14.15 |
| Malleable, Pittsburg | 14.40 |

(First Quarter.)

| | |
|---|---|
| Bessemer, valley | $15.00 |
| Bessemer, Pittsburg | 15.90 |
| Basic, valley | 13.75 |
| Basic, Pittsburg | 14.65 |
| No. 2 foundry, Pittsburg | 14.90 |
| Gray forge, Pittsburg | 14.40 |
| Malleable, Pittsburg | 14.90 |

**Ferro-Alloys.**—Several sales of ferro-manganese, including one for 250 tons for delivery at Sharon, Pa., over the first half, at slightly under $39, Baltimore, are noted in this market. Scattering sales for prompt shipment are noted on a basis of $38.75, Balti-

more. Inquiry for 50 per cent ferro-silicon is slightly heavier and old lots have been sold for forward delivery on a basis of $56.50 to $57, Pittsburg. Premiums are still being paid for this material for prompt shipment. Demand for domestic ferro-silicon is fairly heavy.

We quote ferro-manganese at $38.75, Baltimore, for prompt, and $39, Baltimore, first half of 1911. The freight rate from Baltimore to Pittsburg is $1.95 per ton.

Fifty per cent ferro-silicon is quoted at $56.50 to $57, Pittsburg, for first half, with an advance of from $1 to $2 a ton for immediate shipment; domestic, 12 per cent, $25; 11 per cent, $24; 10 per cent. $23, f. o. b. Jisco and Ashland furnaces. The freight rate to Pittsburg is $1.90. The foreign grades are held at $1 or more a ton over domestic prices.

**Plates.**—The market on plates continues to be one of the weak spots in the local trade. New business is light, specifications are moderately heavy and prices are soft, although makers are not accepting any business below 1.40c, Pittsburg. Orders for cars are still being held up, although some of the railroads are expected to cover for part of their requirements in the near future. The Pressed Steel Car Co. has received an order for 120 box, 20 hopper and 10 flat cars for the Cleveland, Akron & Columbus division of the Pennsylvania lines west. The inquiry of the Pittsburg, Shawmut & Northern for from 3,000 to 5,000 coal and box cars is still under negotiation and will probably not be acted upon until next month. One of the large trunk lines, which originally intended to replace 8,500 wooden freight cars with new steel cars, this week decided to send the wooden cars to shops for repairs and to postpone action on new equipment. The repairs will cost approximately $125 for each car. We quote the market as follows:

Tank plates, ¼ inch thick, 6¼ to 100 inches, 1.40c. Extras are as follows, per 100 pounds: Boiler and flange steel plates, 0.10c; A. B. M. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.20c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end not being less than 30 inches, 0.10c; circles, 0.20c. Plates in widths over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1c. Gages under ½ inch to and including 3-16 inch plate on thin edge, 0.10c; under 3-16 and including No. 9, 0.25c. Five cents extra for less than carloads. Terms net cash in 30 days.

**Sheets.**—Specifications on contracts for sheets are coming in at a more satisfactory rate than at this time last month. Several contracts have been placed in this market for first quarter delivery, although some makers will not quote today's prices for delivery beyond Dec. 31. Although a few mills are four weeks behind in shipments, low prices are still being made on blue annealed and galvanized sheets. We quote base prices as follows, with $1 a ton added as the delivered price in the Pittsburg district:

Blue annealed sheets, No. 10 gage, 1.60c to 1.65c; box annealed sheets, No. 28 gage, 2.15c to 2.20c; galvanized sheets, No. 28 gage, 3.15c to 3.20c; painted roofing sheets, 1.55c to 1.60c per square for No. 28 gage, 2½-inch corrugation; galvanized roofing sheets, 2.75c to 2.80c per square for No. 28 gage, 2½-inch corrugation.

**Tin Plate.**—Additional contracts involving heavy tonnages of tin plate, for delivery next year, have been placed in this market. There is also slightly heavier buying for November and December shipment and prices are firm. Some of the larger concerns are operating at about 60 per cent of their serviceable capacity and additional mills will be placed in operation next week, as soon as repairs are completed. All tin mills are being placed in good working condition, and it is expected that production will be materially increased about Dec. 1. The base price on tin plate is as follows:

Coke tin plate, 10-pound basis, 14 x 20, $3.60, f. o. b. mill, Pittsburg district.

**Rails and Track Material.**—A fairly heavy tonnage of standard steel rails for 1911 delivery is under negotiation and the indications are that some large awards will be made in the near future. One or two large transportation companies have made no announcement as yet regarding their rail requirements which were to have been acted upon this week, but it is believed that definite action will be taken shortly. It is also intimated, that on account of uncertainty as to what action the interstate commerce commission will take concerning the proposed advance in freight rates, the initial awards of the larger trunk lines will not cover their full requirements for next year and that additional orders will be placed when the freight rate controversy is adjusted. Very little rail business will now be placed for delivery this year. Local mills report that bookings of light rails are fairly heavy. A number of the railroads are figuring on fairly large awards for spikes and track bolts. We quote the market as follows, the base price on open-hearth being 1.34c per pound, at the mill:

Fifty-pound and heavier, 1.25c per pound; carloads and less than 500 tons, 1.34c per pound; light rails on base weight of 40 to 45 pounds, $26.50 to $27, the schedule on the other weights being irregular and subject to negotiations; angle splice bars for standard sections, 1.50c, Pittsburg; standard spikes, 1.55c to 1.60c, Pittsburg; hand spikes, 1.65c to 1.70c, Pittsburg; track bolts, 2.30c, Pittsburg.

**Steel.**—The deadlock between makers and sellers over prices of semi-finished steel for delivery next year has not been broken and the market is rather spotty. Some mills are not anxious to accept business for prompt shipment at minimum prices quoted in some sections, although there is evidence of shading on the part of other mills. Bessemer billets, for prompt shipment, have been sold on a basis of $23, makers' mill, Pittsburg, although some mills will not quote below $24, Pittsburg. Reports that $24, f. o. b. mill, Pittsburg, has been done on Bessemer sheet bars have not been confirmed, although there has been some trading at $24.50. There is more inquiry for Bessemer steel for 1911 delivery, but few contracts have been placed. Demand for open-hearth steel is not very heavy and low prices have been reported. We quote the market as follows:

Bessemer 4 x 4 billets with 0.25 carbon and less are quoted at $23 to $24, Pittsburg, with the usual extras for size and analysis, and open-hearth rolling billets, $23.50 to $24, Pittsburg. Forging billets are quotable at $29 to $30, Pittsburg. Bessemer sheet and tin bars are quoted at $24.50, and open-hearth sheet bars are quoted at $24.50, makers' mill, located within the $1, Pittsburg, freight limits.

**Hoops and Bands.**—Makers of hoops and bands report heavier buying on the part of cooperage interests, some contracts extending over the first quarter of next year. Local mills are operating on practically the same basis as last month. Prices are firm. We quote the market as follows:

Hoops in carload lots, 1.50c; in less than carload lots, 1.65c; bands, 1.40c, base, with net extras, as per standard steel.

**Merchant Bars.**—Reports from western centers indicate that a number of the agricultural implement manufacturers will come into the market in the near future for a fairly heavy tonnage of steel bars. New business for prompt shipment is coming in at about the same rate as a month ago, although the total tonnage on books for delivery this year is comparatively light. Prices are firm with 1.40c, Pittsburg, as the minimum. There is very little new business in bar iron appearing, and, while local makers state that the bulk of the trading is being done on a basis of 1.40c, Pittsburg, the bi-monthly examination of sales sheets of representative makers in connection with the adjustment of the puddlers' wage scale shows a 1.35c, Pittsburg, card. Makers of shafting report light buying in all sections. We quote the market as follows:

Common iron bars, 1.35c to 1.40c, Pittsburg; Bessemer and open-hearth steel bars, 1.40c; plow and cultivator, 1.40c; channels, angles, zees, tees, under 3-inch, 1.50c, all f. o. b. mill. The following differentials are maintained on steel: Less than 2,000 pounds of a size, 0.35c advance. Cold rolled and ground shafting, 55 per cent in carloads and

50 per cent in less than carloads, delivered in base territory.

**Muck Bar.**—Consumers having covered for their requirements over the remainder of the year and first quarter of 1911, there is little trading in this market. We quote the best grades of muck bar at from $30 to $30.50, Pittsburg.

**Structural.**—Practically all of the awards for structural steel made in this market during the past week have been for small lots. The total tonnage booked, however, by local companies, exceeds that of the corresponding period in October. The Riter-Conley Mfg. Co. has taken the contract for the Oil Well Supply Co.'s warehouse, Pittsburg, which will require 750 tons of steel. Fairly heavy tonnage will be involved in the new seven-story office building to be erected at Youngstown, O., by the Republic Iron & Steel Co., which is to be completed by July 1, 1911. Other inquiries for structural steel, noted recently, are still pending. We quote the market as follows:

Beams and channels, 15 inches and under, 1.40c; over 15 inches, 1.50c; zees, 1.40c; tees, 1.45c; angles, from 3 to 6 inches, 1.40c; over 6 inches, 1.50c; universal and sheared plates, 6¼ inches wide and wider, 1.40c.

**Merchant Pipe.**—Inquiries for large sizes of pipe appear to be more general, but some of these are rather indefinite and probably will not result in any large orders being placed in the near future. While there is still a fair amount of miscellaneous business developing, production is being curtailed somewhat in the various districts. There is a fair demand for merchant steel pipe, and jobbers are buying more freely, although stocks are not being increased. The Wheeling Steel & Iron Co., Wheeling, W. Va., has recently taken a contract for several hundred tons of iron pipe of various sizes. It is expected that the addition to the plant of A. M. Byers & Co. at Girard, O., will be placed in operation about Dec. 15. Improvements to this plant include 46 new puddling furnaces. We quote the following official discounts in carload lots, subject to the usual preferential discount to the larger buyers, merchant pipe, where specified, being offered in sizes from ⅛ to 6 inches:

**Iron and Steel Basing Prices.**

| | Steel. | | Iron. | |
|---|---|---|---|---|
| | | Butt weld. | | |
| | Black. | Galv. | Black. | Galv. |
| ⅛, ¼, ⅜ inch | 72 | 58 | 68 | 54 |
| ½ inch | 75 | 63 | 71 | 59 |
| ¾ to 1½ inch | 79 | 69 | 75 | 65 |
| 2 to 3 inches | 80 | 70 | 76 | 66 |
| | | Lap weld. | | |
| 2 inches | 76 | 66 | 72 | 62 |
| 2½ to 4 inches | 78 | 68 | 74 | 64 |
| 4½ to 6 inches | 77 | 67 | 73 | 63 |
| 7 to 12 inches | 75 | 59 | 71 | 55 |
| EXTRA STRONG, PLAIN ENDS. | | | | |
| | | Butt weld. | | |
| ⅛, ¼, ⅜ inch | 69 | 59 | 65 | 55 |
| ½ inch | 74 | 68 | 70 | 64 |
| ¾ to 1½ inch | 78 | 72 | 74 | 68 |
| 2 to 3 inches | 79 | 73 | 75 | 69 |
| EXTRA STRONG, PLAIN ENDS. | | | | |
| | | Lap weld. | | |
| 2 inches | 75 | 69 | 71 | 65 |
| 2½ to 4 inches | 77 | 71 | 73 | 67 |
| 4½ to 6 inches | 76 | 70 | 72 | 66 |
| 7 to 8 inches | 69 | 59 | 65 | 55 |
| 9 to 12 inches | 64 | 54 | 60 | 50 |
| DOUBLE EXTRA STRONG, PLAIN ENDS. | | | | |
| | | Butt weld. | | |
| ½ inch | 64 | 58 | 60 | 54 |
| ¾ to 1½ inch | 67 | 61 | 63 | 57 |
| 2 to 3 inches | 69 | 63 | 65 | 59 |
| DOUBLE EXTRA STRONG, PLAIN ENDS. | | | | |
| | | Lap weld. | | |
| 2 inches | 65 | 59 | 61 | 55 |
| 2½ to 4 inches | 67 | 61 | 63 | 57 |
| 4½ to 6 inches | 66 | 60 | 62 | 56 |
| 7 to 8 inches | 59 | 49 | 55 | 45 |

Plugged and reamed pipe is furnished at 2 points higher price, either butt or lap weld.

**Boiler Tubes.** — Specifications for merchant and locomotive boiler tubes, so far this month, show only a slight decline as compared with the corresponding period in October. New business is light. We quote the market as follows:

| | Steel. | Iron. |
|---|---|---|
| 1 to 1½ inch | 49 | 43 |
| 1¾ to 2¼ inch | 61 | 43 |
| 2½ inch | 63 | 48 |
| 2¾ to 5 inch | 69 | 55 |
| 6 to 13 inch | 60 | 43 |

2½ inch and smaller, over 18 feet, 10 per cent net extra.

2¾ inch and larger, over 22 feet, 10 per cent net extra.

To destination east of the Mississippi river will be sold at delivered discount for carloads lowered by two points, for lengths 22 feet and under; longer lengths, f. o. b. Pittsburg.

**Wire Products.**—New business in wire and nails, while fairly heavy, is confined to urgent needs. Specifications are coming in at a satisfactory rate and production at some plants in western Pennsylvania has been increased. Some mills are shading $1.50 on plain wire and $1.70 on wire nails. Quotations on cut nails range from $1.60 to $1.65, Pittsburg, for jobbers' carload lots. Comparatively few orders have been booked for delivery beyond Jan. 1. We quote the market as follows:

Wire nails, jobbers' carload lots, $1.65 to $1.70; retailers' carload lots, $1.70 to $1.75; cut nails, jobbers' carload lots, $1.60 to $1.65; painted barb wire, jobbers' carload lots, $1.70; retailers' carload lots, $1.75, with 30c for galvanizing; plain wire to jobbers in carloads, $1.45 to $1.50, and to dealers, in carloads, $1.50 to $1.55; polished staples, $1.70; galvanized staples, $2.

**Wire Rods.**—Users of wire rods are not buying very far ahead, but there is a fair volume of new business for prompt shipment and prices are firm. We quote $28.50 to $29, Pittsburg, on Bessemer and open-hearth rods.

**Coke.**—With the withdrawal of circular letters sent to the trade a few weeks ago offering from 10,000 to 50,000 tons of Connellsville furnace coke for November and December shipment, at $1.35, ovens, the market is showing a stronger tone. A sale of 15,000 tons of standard Connellsville furnace coke for first half shipment at $1.90, ovens, is noted, this being the first legitimate sale for first half at a flat price reported in this market. Several sliding scale contracts have been made to cover 1911, one of which involves a total of 156,000 tons or 13,000 tons a month. It is expected that two deals of this character involving a total of 720,000 tons to cover a period of one year beginning Jan. 1, 1911, will be closed before the end of this week. Furnaces, which have been buying from month to month, are now closing for their December requirements on a basis of from $1.45 to $1.55, ovens. Demand for foundry coke is fairly good and prices are firm. Production in the Connellsville region is being further curtailed. Since January of this year, production has declined from 475,000 tons weekly to 340,556 tons, the record for last week. We quote standard Connellsville furnace coke, for prompt shipment, at from $1.45 to $1.55, ovens, and for first half at $1.90, ovens. On high grade Connellsville foundry coke, we quote from $2 to $2.10, ovens, for prompt delivery; for first half, from $2.25 to $2.50, ovens. The Connellsville *Courier's* figures for the week ending Nov. 5, show 27,163 active ovens with an output of 340,556 tons, compared with 27,414 active ovens and a production of 347,896 tons the previous week.

**Old Material.**—There is a better demand for machine shop turnings and cast borings, with the result that prices of these grades are from 25 to 50 cents a ton higher. There is a fair offering of bundled sheet scrap and sales have been made this week at 25 cents a ton lower. Old car wheels are held at from $13 to $13.50, a reduction of 50 cents. Heavy melting steel has been sold at $14. Trading during the past week has been comparatively light and consumers are buying only for prompt shipment. We quote, gross tons, delivered in the Pittsburg district, including Monessen, Sharon, Steubenville, Brackenridge and Follansbee, as follows:

| | |
|---|---|
| Heavy melting scrap | $13.75 to 14.00 |
| Rerolling rails | 15.00 to 15.50 |
| Bundled sheet scrap | 10.25 to 10.75 |
| Iron axles | 24.00 to 24.50 |
| Old iron rails | 15.00 to 15.25 |
| No. 1 wrought scrap | 14.50 to 15.00 |
| Old car wheels | 13.00 to 13.50 |
| Low phosphorus | 17.50 to 18.00 |
| Machine shop turnings | 9.50 to 10.00 |
| Cast borings | 8.50 to 9.00 |
| No. 1 cast scrap | 14.00 to 14.25 |
| Malleable | 14.00 to 14.50 |
| Stove plate | 11.00 to 11.50 |

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The exports of copper for the month of October, including southern and Pacific ports, amounted to 27,917 tons, an increase of 4,041 tons over the corresponding period of last year.

# CHICAGO

## Iron and Steel Trade in Central West More Active.

Office of THE IRON TRADE REVIEW,
1328 Monadnock Block, Nov. 15.

Although, in a good many quarters, it was felt that the results of the election were so much discounted that they could not have any particular effect on the business situation, the fact remains that the iron and steel trade in the central west is showing considerable activity and is exhibiting more favorable features at present than has been the case for some months. Makers of iron bars are booking increased tonnages and there has been some quiet buying of bars by railroad interests. Considerable structural business is awaiting final action in the Chicago market, including 4,500 tons for a theater to be erected by the J. H. Heyworth interests, and 1,600 tons for a warehouse to be built by Marshall Field & Co. Another encouraging feature of the situation is the larger volume of rail business which is being taken. The larger railroads in the central west are expected to place their 1911 rail orders within a comparatively short time, but it is not expected that the purchases will be very liberal. Sheets and all of the lighter lines are moving very well.

**Pig Iron.**—While the pig iron market of the central west is improving, it is apparently not gaining activity as rapidly as the eastern market. The test of the western market will come in about a month, when it will be decided whether southern iron will be quotable for prompt delivery during the first quarter at $11.00 or $11.50, the prevailing price at present for first quarter. There is considerable malleable business pending in the market, and we note an inquiry of 5,000 tons from Milwaukee and 2,000 tons from Chicago. A Wisconsin firm has purchased 7,800 tons of northern iron and scattering business has been comparatively large. The market seems to be moving in the right direction and some improvement in prices is anticipated. We quote, f. o. b. Chicago, as follows:

(This year's delivery.)

| | |
|---|---|
| Lake Superior charcoal | $18.00 to 18.50 |
| Northern foundry No. 2 | 16.00 to 16.50 |
| Southern foundry No. 2 | 15.35 to 15.85 |
| Southern silveries, 5 per cent silicon | 16.85 to 17.35 |
| Jackson Co. silveries 8 per cent. | 19.40 |
| Malleable Bessemer | 16.00 to 16.50 |
| Aabama basic | 15.35 to 15.85 |

(First quarter delivery.)

| | |
|---|---|
| Lake Superior charcoal | 18.50 to 19.00 |
| Northern foundry No. 2 | 16.25 to 16.75 |
| Southern foundry No. 2 | 15.85 to 16.35 |
| Southern silveries, 5 per cent silicon | 17.35 to 17.85 |
| Jackson Co. silveries, 8 per cent. | |
| Malleable Bessemer | 16.25 to 16.75 |
| Alabama basic | 15.85 to 16.35 |

**Billets.**—The Chicago billet market remains quiet although a few small sales are being made. We note a sale of 500 tons to a local consumer. We quote, nominally, open-hearth forging billets, f. o. b. Chicago, $27.50 to $28.50.

**Merchant Bars.**—Makers of iron bars are reporting some increase in business and some quiet buying by the railroad and transportation interests. Prices of bar iron are stiffening somewhat and 1.35c, Chicago, represents the minimum at present. Orders received for steel bars show a slight increase over last week and indicate that the situation is slowly improving. A leading maker reports that about one-half of the business received is specifications against old contracts and the balance is new business.

We quote for Chicago delivery, as follows:

Bar iron, 1.35c to 1.40c; hard steel bars, re-rolled, 1.45c to 1.55c; soft steel bars and bands and small shapes, 1.58c to 1.63c, base; hoops, 1.73c to 1.83c; planished or smooth finished tire steel, 1.78c to 1.83c, base; iron finished tire steel, 1.73c, base; smooth finished machinery steel, 1 inch and larger, 2.43c; spring steel, 2.28c; crucible spring steel, 2.78c; tool steel, 7c to 9c, with higher prices for special grades. Quotations on shafting are 55 per cent off the list for carload lots, and 50 per cent off for less than carload lots, carload freight allowed to points in base territory.

On iron and steel from local stock, we quote as follows:

Bar iron, 1.80c to 1.90c, per pound base; soft steel bars, 1.80c to 1.90c per pound base; soft steel hoops, 2.10c to 2.20c, full extras.

**Structural Material.** — Considerable new business in the Chicago district is being held up awaiting action on the new building code which may be settled by the city council this week, although the matter has been dragging along for some time. J. H. Heyworth and associates are expecting to call for bids soon for a theater on Clark street, which will require about 4,500 tons of structural material. The Arkansas supreme court has ratified a state bond issue providing for the construction of a bridge across the Arkansas river at Ft. Smith for the Ft. Smith and Van Buren irrigation district. The bridge will require 4,600 tons of material and will be rushed to completion by the American Bridge Co., which received the contract. The American Bridge Co. has received orders for 240 tons of bridges from the Chicago, Milwaukee & St. Paul railway, and 140 tons from the Oklahoma Central Railway. Paxton-Vierling Co., Omaha, will fabricate a building, 460 tons, for the Omaha Electric Light & Power Co. The American Bridge Co. has taken 300 tons for a stamp mill from the Nevada Hills Mining Co., Salt Lake. The new Marshall Field & Co. warehouse, 1,600 tons of Bethlehem shapes, mentioned in this report two weeks ago, will be let as soon as the building ordinance is passed.

We quote, mill prices for structural shapes, Chicago delivery, as follows:

Beams and channels, 15 inches and under, 1.58c to 1.63c. For extras, see Pittsburg report.

We quote, local store prices, f. o. b. Chicago, as follows:

All angles, 3 inches and larger, including 6 inches, $1.80 to $1.90 per 100 pounds; angles over 6 inches, $1.90 to $2 per 100 pounds, base; beams, 3 to 15 inches, inclusive, $1.80 per 100 pounds, base; channels, 3 inches and larger, $1.80 per 100 pounds, base.

**Rails and Track Supplies.**—Business has shown a perceptible improvement since the election and a better feeling is evident throughout the trade. Local rail mills booked orders for about 22,000 tons of standard rails during the past week and further business is expected as the railroads come into the market more freely for their 1911 requirements. The Burlington is expected to place its order soon. It develops that about 15,000 tons of the Norfolk & Western order was taken by western interests. The market in track supplies is quiet and activity is not expected until the rail market develops further.

See Pittsburg reports for prices on standard sections.

On light rails and track supplies for Chicago delivery we quote, as follows:

Light rails, 35, 40 and 45-pound, $26; 16, 20, 25 and 30-pound, $27; 12-pound, $28.

Light section relayers, 45 pounds and under, subject to inspection, $21 to $23; standard section re-laying rails, subject to inspection, $23.50 to $24.

Track supplies, f. o. b. Joliet, angle bars, 1.50c to 1.60c; railroad spikes, 1.70c to 1.75c; smaller size spikes, 1.75c, base; track bolts with square nuts, 2.25c to 2.30c, base.

**Plates.**—Local plate mills are able to improve their schedules somewhat and the outlook is reassuring. An encouraging feature of the market is some increase in plate specifications from car equipment companies; a 1,200-ton order of this character is noted. The shading on plates which has been evident for several weeks past seems to be gradually disappearing and makers are having little difficulty in obtaining business on a strictly 1.40c, Pittsburg, basis.

We quote, Chicago delivery, as follows:

Tank plates, ¼ inch thick, 6¼ to 100 inches wide, 1.53c to 1.63c. For extras, see Pittsburg report.

Store prices, f. o. b. Chicago, are as follows:

Tank steel, ¼ inch and heavier, up to 72 inches wide, 1.80c to 1.90c; from 72 inches to 96 inches wide, 1.90c to 2c; 3-16 inch up to and including 60 inches wide, 1.90c to 2c; 72 inches, 2.15c to 2.25c; No. 8, up to 60 inches wide, 1.95c to 2.05c. Flange quality and heads, 25c extra.

**Sheets.**—The volume of sheet business is indicating gradual improvement, although prices are a little weaker. It is probable that November business booked by the local sheet mills will show at least as good a record as the two months previous.

We quote, store prices at Chicago, as follows:

Blue annealed No. 10, 2.10c to 2.20c; No. 12, 2.20c to 2.30c. Box annealed, No. 28, 2.75c to 2.85c. Galvanized, No. 28, 3.65c to 3.75c.

For mill prices, see Pittsburg report. Freight to Chicago, 18 cents.

**Wire Products.**—Orders for agricultural wire continue to come in from all sections and the trade remains active. Nails are in good demand and wire for electrical purposes is moving better.

We quote, f. o. b. Chicago, as follows:

Wire nails, jobbers' carload lots, $1.88; retailers' carload lots, $1.93; retailers' less than carload lots, $2.03; painted barb wire, jobbers' carload lots, $1.88; retailers' carload lots, $1.93; retailers' less than carload lots, $2.03; with 30c for galvanizing; plain wire to jobbers, $1.68; plain wire, retailers' carload lots, $1.73; staples, bright, $1.88.

**Merchant Pipe and Tubes.**—The jobbing trade in the local market continues heavy and prices are firm for all sizes of merchant pipe. Liberal orders for pipe and fair orders for tubes are being received from the territory west and north of Chicago tributary to this district.

We quote, iron and steel pipe and tubes out of store, as follows, f. o. b. Chicago:

**Iron and Steel Pipe Basing Prices.**

| | Steel. Black. | Steel. Galv. | Iron. Black. | Iron. Galv. |
|---|---|---|---|---|
| ⅛-⅜ inch | 68.2 | 53.2 | 62.2 | 47.2 |
| ½ inch | 71.2 | 58.2 | 65.2 | 52.2 |
| ¾ inch | 76.2 | 65.2 | 71.2 | 60.2 |
| 4½-6 inches | 73.2 | 62.2 | 69.2 | 58.2 |
| 7-12 inches | 70.2 | 53.2 | 66.2 | 49.2 |
| EXTRA STRONG PLAIN ENDS. | | | | |
| ½ inch | 69.2 | 62.2 | .... | .... |
| ¾ inch | 74.2 | 67.2 | .... | .... |
| ⅞ inch | 64.2 | .... | .... | .... |
| DOUBLE EXTRA STRONG. | | | | |
| ½ inch | 57.2 | 49.2 | .... | .... |
| ¾ inch | 62.2 | 54.2 | .... | .... |
| ⅞ inch | 52.2 | 40.2 | .... | .... |

**Tubes.**

| | Lap weld steel. Per cent. | Charcoal iron. Per cent. | Shelby seamless. Per cent. |
|---|---|---|---|
| 1 inch | .. | .. | 57½ |
| 1¼ to 2¼ inch | 50 | 35 | 35 |
| 2½ to 5 inch | 60 | 48 | 46 |

**Cast Iron Pipe.**—Routine business continues fair, but there is evidence of some slacking up owing to the near approach of winter. The election is expected to have a steadying effect on the bond market which will naturally react favorably on the demand for cast iron pipe.

We quote, f. o. b. Chicago, as follows:

Four-inch water pipe, $27; 6 to 12 inches, $26; larger sizes, $25; gas pipe, $1 a ton higher.

**Old Material.**—The market remains practically unchanged with the tone in the trade possibly a little better. No price changes of consequence are noted, but consumers are displaying a little more willingness to receive quotations and to entertain propositions from dealers. The Chicago, Milwaukee & St. Paul railway has issued a list of 2,195 tons, of which 750 tons are old steel rails over 4 feet in length and the Chicago, Rock Island & Pacific railway has issued a list amounting to 154 tons, closing Nov. 16, and is also offering for sale engine No. 339 built in 1882 and practically worn out. A prominent local scrap iron firm is in the hands of a receiver but the embarrassment is expected to be temporary.

We quote, the market f. o. b. Chicago, as follows:

GROSS TONS.

| | |
|---|---|
| Old car wheels | $12.00 to 13.00 |
| Old iron rails | 15.75 to 16.25 |
| Rerolling rails (5 ft. and over) | 15.00 to 15.50 |
| Old steel rails (3 ft. and under) | 13.00 to 13.50 |
| Frogs, switches and guards | 12.00 to 12.50 |
| Heavy melting steel | 12.00 to 12.50 |
| Shoveling steel | 11.50 to 12.00 |

NET TONS.

| | |
|---|---|
| No. 1 R. R. wrought | $11.75 to 12.25 |
| No. 2 R. R. wrought | 10.50 to 11.00 |
| Arch bars and transoms | 14.50 to 15.00 |
| Knuckles, couplers and springs | 11.25 to 11.75 |
| Shafting | 16.50 to 17.00 |
| Iron car axles | 19.00 to 19.50 |
| Steel car axles | 19.00 to 19.50 |
| Locomotive tires | 16.00 to 16.50 |
| Dealers' forge | 10.50 to 11.00 |
| Pipes and flues | 9.00 to 9.50 |
| No. 1 cast, 150 lbs. and less | 12.00 to 12.50 |
| No. 1 busheling | 9.75 to 10.25 |
| No. 2 busheling | 8.00 to 8.25 |
| No. 1 boiler cut | 8.75 to 9.25 |
| Boiler punchings | 14.25 to 14.75 |
| Cast and mixed borings | 5.00 to 5.50 |
| Machine shop turnings | 7.00 to 7.50 |
| Railroad malleable | 11.00 to 11.50 |
| Agricultural malleable | 10.25 to 10.75 |
| Stove plate and light cast scrap | 11.00 to 11.50 |
| Angle bars, splices, etc., iron | 13.25 to 13.75 |
| Angle bars, steel | 11.50 to 12.00 |

## CLEVELAND

### More Activity in Pig Iron—Demand For Reinforcing Bars.

Office of THE IRON TRADE REVIEW,
Penton Building, Nov. 15.

**Iron Ore.**—The wild weather of the past few days has interfered with the movement of ships and many of the large carriers which expected to make one more trip will go into winter quarters when they reach Lake Erie. This, of course, will tend to further lessen the movement of ore. In fact the ore movement of 1910 would be sensibly under the movement of 1909 were it not for the great strides made during the first months of the season. The slump in the fall months has been the worst ever.

On base ores with the guarantee of 55 per cent on old range and Mesabi Bessemer, and 51½ per cent on old range and Mesabi non-Bessemer, we quote as follows: Old range Bessemer, $5; Mesabi Bessemer, $4.75; old range non-Bessemer, $4.20; Mesabi non-Bessemer, $4.

**Pig Iron.**—There is much more interest in the pig iron market as evidenced by inquiries and sales made in districts to which furnaces represented by Cleveland agencies often make sales, but in the immediate Cleveland district the market is quiet. The United States Radiator Corporation, Dunkirk, N. Y., has contracted for enough pig iron to fill its requirements for six months, the tonnage being taken by Detroit, Toledo and Buffalo firms. Details are not available. The American Steel Foundries is in the market for from 10,000 to 20,000 tons of basic for first half delivery at its Granite City, Ill., plant. The Colonial Steel Co. is inquiring for 1,500 tons of basic for first half delivery. The office of one blast furnace company has received within the past few days inquiries amounting to about 45,000 tons of basic and malleable, mostly basic, for various deliveries. A large buyer who desired to purchase 10,000 tons of basic for delivery over the next five months met refusal when he offered $13.25, valley. A sale of 500 tons of malleable, first quarter, was made in this city at $14 valley. Some basic makers have advanced their prices to $13.75, valley. The inquiry of the General Electric Co. for 7,500 tons of foundry grades for delivery during the first half at its new plant at Erie, Pa., is still pending. We quote deliveries in Cleveland as follows:

| | |
|---|---|
| No. 1 foundry | $14.75 |
| No. 2 foundry | 14.25 |
| No. 2 Southern | 15.35 |
| Gray forge | 14.00 |
| Bessemer | 15.90 |
| Lake Superior charcoal | 18.00 |
| Jackson Co. 8 per cent silvery | 19.00 |

**Coke.**—The General Electric Co. is inquiring for 1,000 tons of foundry coke for delivery at its Erie, Pa., plant during the first half of next year. The coke market is quiet, and prices are stationary.

Connellsville furnace coke $1.40 to $1.55 for prompt delivery, and $1.70 to $1.75 on contracts for this year and $1.80 to $1.90 for first half next year. Connellsville foundry coke, $2 to $2.10 for prompt, and $2.25 on

contract for this year, and $2.25 to $2.50 for first half of next year.

**Finished Material.**—Nearly all the dealers report better feeling since the election, and slight improvement in specifications, but no very large tonnages are pending. There is a good demand for reinforcing bars, pending business including 220 tons for Hunkey & Conkey for a pumping station at Detroit, 200 tons for the National Concrete Construction Co., for a building at Case School of Applied Science, and 326 tons for Crowell & Sherman for the new Perry-Payne power building. A southern Ohio interest which has been widely credited with selling plates at 1.35c Pittsburg states that its price is 1.40c Pittsburg, the quotation made by all the largest producers.

**Old Material.**—The market generally has firmed up in the past week. Prices in several grades have risen, about 75c on heavy steel, 50c on old iron rails, borings, No. 1 machine cast and No. 1 railroad wrought. Consumers of heavy steel in this locality are now buying and taking the material as fast as delivered. All in all the local market possesses more of a brightening tendency today than in some months. We quote, f. o. b. Cleveland, as follows:

| | |
|---|---|
| Old iron rails | $16 50 to 17.50 |
| Old steel rails (under 6 ft.) | 14.00 to 14.50 |
| Old car wheels | 12.50 to 13.00 |
| Old steel boiler plate | 11.00 to 11.50 |
| Malleable iron (railroad) | 13.25 to 13.75 |
| Steel axles | 19.50 to 20.00 |
| Malleable iron (agricultural) | 12.00 to 12.50 |
| Heavy steel | 13.75 to 14.00 |
| Country mixed steel | 12.25 to 12.75 |

We quote, in gross tons, as follows:

| | |
|---|---|
| No. 1 R. R. wrought | $13.00 to 13.50 |
| No. 1 busheling | 12.00 to 12.50 |
| No. 1 machine cast | 12.50 to 13.00 |
| Axle turnings | 9 00 to 9.50 |
| Machine shop turnings | 6 50 to 7.00 |
| Grate bars | 10.50 to 11.00 |
| Pipes and flues | 11.00 to 11.50 |
| Tank iron | 9.00 to 9.50 |
| Sheet iron | 5.00 to 5.50 |
| Wrought drilling | 6.50 to 7.00 |
| Cast borings | 6 50 to 7.00 |
| Cast borings | 6.50 to 7.00 |

## CINCINNATI

### Pig Iron Improves Slowly—Basic Inquiry Withdrawn.

Office of THE IRON TRADE REVIEW,
Room 11, Blymyer Bldg., Nov. 15.

**Pig Iron.**—The question as to when a buying movement may be expected appears to hinge more on expected developments throughout the country than upon the price of iron as it is today. A large number of people are greatly surprised at the result of the recent election, and are endeavoring to come to a definite conclusion as to their exact whereabouts. Conditions appear to have settled somewhat, and while there is a general well scattered inquiry, sales have not been up to expectations. They are, however, ahead of what they were several weeks since. The situation as regards southern iron begins to look a little more encouraging from the fact that while spot iron continues to be on an $11 basis, with next year's quotations $11.50, the trend of prices is apparently toward the higher figure the nearer we approach the imaginary line that separates this year from next. In the north, the situation is a little more acute and prices are somewhat irregular, ranging from $14 to $14.50, Ironton, with demand a little more quiet. High silicon irons are not in active demand, and are said to be holding fairly firm at established quotations. The lower grades are said to be rather scarce, with prices well maintained. There is a rumor current that one of the large pipe-making plants secured a large tonnage of various grades during the week, but exact figures were not obtainable. There was a sale made of 1,000 tons of southern charcoal iron that went into Pittsburg territory on a $24, Birmingham basis, an advance of $1.50 per ton. Good standard southern charcoal is reported scarce owing to the limited amount of charcoal obtainable and the increased cost. Several years since, it was possible to procure this fuel at 4 to 4½ cents per bushel, while today the prevailing price is from 8 to 8½, and it is scarce at these figures. The basic inquiry of a local melter, that was pending for several weeks, has been withdrawn on account of unsatisfactory prices. There are a number of inquiries ranging from 100 to 500 tons now pending, that aggregate considerable tonnage. A melter in St. Louis territory bought 1,000 tons southern foundry grades for first half delivery. A sale of 500 tons of southern foundry No. 2 went into Iowa territory on $11.50, Birmingham, basis, delivery running through the first six months of next year.

We quote prices based on freight rate of $3.25 from Birmingham, and $1.20 from Ironton as follows:

| | 1910. | First quarter, 1911. |
|---|---|---|
| Southern foundry No. 1 | $14.75 to 15.25 | |
| Southern foundry No. 2 | 14.25 to 14.75 | |
| Southern foundry No. 3 | 13.75 to 14.25 | |
| Southern foundry No. 4 | 13.75 to 14.25 | |
| Southern No. 1 soft | 14.75 to 15.25 | |
| Southern No. 2 soft | 14.25 to 14.75 | |
| Southern gray forge | 13.75 to 14.25 | |
| Northern No. 1 foundry | 15.70 to 15.95 | |
| Northern No. 2 foundry | 15.20 to 15.45 | |
| Northern No. 3 foundry | 14.70 to 14.95 | |
| Jackson county 6 per cent silicon | | 18.20 |
| Jackson county 8 per cent silicon | 19.20 to 19.70 | |
| Jackson county 10 per cent silicon | | 20.20 |

**Coke.**—There is a fair tonnage pending of furnace brands, with foundry inquiry quiet. Several furnaces contracted for their requirements during the week, aggregating quite a large tonnage. Prices appear to be holding fairly firm and shipments are moving regularly. We quote from the leading coke producing districts as follows:

| Connellsville district: | Prompt Shipment. | During year. |
|---|---|---|
| Foundry coke | $2.00 to 2.25 | $2.25 to 2.50 |
| Furnace coke | 1.55 to 1.65 | 1.75 to 1.85 |
| **Wise county district:** | | |
| Foundry coke | 2.00 to 2.25 | 2.15 to 2.25 |
| Furnace coke | 1.65 to 1.75 | *Sliding scale basis. |
| **Pocahontas district:** | | |
| Foundry coke | 2.10 to 2.25 | 2.25 to 2.50 |
| Furnace coke | 1.65 to 1.75 | 1.75 to 1.85 |
| **New river:** | | |
| Foundry coke | 2.50 to 3.25 | 2.60 to 3.25 |
| Furnace coke | 2.20 to 2.30 | 2.20 to 2.30 |

*Sliding scale basis means $1.60 for coke based on $9, Birmingham, for pig iron, with an advance of 16 2-3 per cent of the amount over $9 at which pig iron is quoted. This is the usual basis. Other forms of sliding contracts are also made.

**Finished Material.**—Plates, shapes and bars are unchanged and quotable at 1.40c Pittsburg. There is very little demand along the line of structural in this vicinity, and the market is quiet. In other lines, selling agencies report a normal volume of current business, with no particular feature of interest.

**Old Material.**—Very little of importance has developed during the week, and the market for scrap continues to drag slowly along. Offerings have been light, and dealers' yards show little added accumulation. The mills are said to be taking contract business, but show little disposition to increase the tonnage. Prices continue to be irregular and show considerable fluctuation. They are said to be about as follows:

| | |
|---|---|
| Old No. 1 R. R. wrought, net tons | $10.50 to 11.00 |
| No. 1 machinery, net | 10.00 to 10.50 |
| No. 1 busheling, net | 10.00 to 10.50 |
| Old iron rails, gross | 16.00 to 16.50 |
| Old steel rerolling, gross | 15.50 to 16.00 |
| Old short lengths, gross | 14.50 to 15.00 |
| Old iron axles, net | 18.00 to 18.50 |
| Heavy melting scrap, gross | 11.00 to 11.50 |
| Stove plate, net | 8.00 to 8.50 |
| Heavy turnings, net | 6.00 to 6.50 |
| Cast borings, net | 4.50 to 5.00 |
| Car wheels | 13.00 to 13.50 |
| Grate bars | 8.50 to 9.00 |

## PHILADELPHIA

### Conference Over Pennsylvania Rails —Little Effect of Election.

Nov. 14.

**Pig Iron.**—There are no marked indications in the pig iron market in this territory that post-election sentiment has had much effect upon the situation. The market is fairly active both in new inquiry and in sales,

and the tonnage continues at a rate of moderate expansion from month to month. Small sales continue the rule but some of the largest buyers in this district are carrying on negotiations for their first quarter requirements. A local locomotive builder has closed on its inquiry calling for 2,000 to 4,000 tons of foundry iron of its own analysis and 1,000 to 2,000 tons of an analysis similar to standard gray forge for first quarter. The leading cast iron pipe maker has put out a new inquiry for 6,000 tons of pipe iron for early shipment and has made some purchases against this tonnage, including one lot of 500 tons. The bulk of the order is still to be placed. On standard grades of foundry iron from eastern Pennsylvania furnaces prices remain from $15.75 to $16 delivered for No. 2X but some other grades in eastern districts are still offered at low prices. In Virginia, the market is quotable at from $13 to $13.25 for No. 2X. General sales of standard gray forge at $14.65 delivered in eastern Pennsylvania are noted, equivalent to $14 furnace in the Lehigh valley and $12 at Virginia furnaces, since part of the iron came from the latter district. An inquiry for 1,000 tons of forge is pending. Prospective buyers and sellers of basic are still unable to agree upon prices on the large tonnage which has been under negotiation for several weeks and aggregating about 30,000 tons for deliveries running over the first quarter. Some of the furnaces continue to hold to a minimum of $15.25 delivered for first quarter, but the consumers seek to buy under $15. Users of low phosphorus iron are taking in metal very freely against contracts, taxing the furnaces to make deliveries in some cases, but new selling is light. Some important negotiations are under way. Curtailment of production continues in the east. The Thomas Iron Co. is about to put out a furnace at Hellerton, Pa., and another Virginia stack is expected to go out soon.

For prompt and first quarter shipment, we quote delivered in Philadelphia and vicinity as follows:

| | |
|---|---|
| No. 1X foundry | $16.25 to 16.50 |
| No. 2X foundry | 15.75 to 16.00 |
| No. 2 plain | 15.25 to 15.75 |
| Standard gray forge | 14.50 to 14.75 |
| Basic | 14.50 to 15.00 |
| No. 2X Virginia | 15.80 to 16.30 |
| No. 2 Southern | 15.00 to 15.50 |
| Low phosphorus | 22.50 |

**Coke.**—What are purported to be good brands of Connellsville furnace coke were offered this week in the east for immediate shipment at $1.35 ovens. An eastern furnace interest has closed for 4,000 tons monthly of furnace coke for first half of 1911 at ruling prices on standard grades for such delivery.

**Finished Material.**—Officials of the Pennsylvania railroad are scheduled to meet with leading rail makers during the week and arrange some final details in the specifications governing the 1911 rail order. No difficulty in this direction is anticipated and the order will probably be placed with the mills, very soon. The election results have apparently cast little influence upon the market although there are cases reported where orders which were positively stated to be held up pending the outcome were placed within the week. Some of the mills have noted some increase in orders but the general situation is little changed.

An important contract attracting the attention of eastern mills is that for two steel colliers to be placed by the government in connection with the two large battleships upon which bids will be entered Dec. 1. These colliers will require 13,500 tons of steel including 9,000 tons of plates and 4,500 tons of shapes. Of the six torpedo boat destroyers upon which bids were just taken, it is understood one each will go to the Newport News Ship Building & Dry Dock Co., to Cramps ship yard, to New York Ship Building Co., to Bath Iron Works, and to Fore River Ship & Engine Building Co., while one of the two latter will receive two boats. The six vessels require about 2,500 tons. The Philadelphia & Reading railroad has placed four wooden car floats with the American Car & Foundry Co. but little steel will be needed.

In building work, the Jones & Laughlin Steel Co. has taken 1,600 tons for the addition to the Raleigh Hotel, Washington, and 200 tons for the Atlantic City Gas & Electric Co. offices at Atlantic City. The 900 tons for the Union League Club addition, Philadelphia, will be placed this week and is expected to go to the American Bridge Co. The Epstein warehouse at Baltimore, soon to appear, wil lrequire from 3,000 to 4,000 tons, according to estimate. About 1,200 tons is to be placed this week for the Savannah Bank & Trust Co. building at Savannah, Ga. Sewer work at Atlantic City which is up again this week calls for 400 tons of steel.

For delivery in Philadelphia and vicinity, we quote as follows:

Structural shapes, 1.55c to 1.60c; steel bars, 1.55c to 1.60c; iron bars, 1.37c to 1.42c; 4 x 4-inch open-hearth rolling billets, $26, eastern mill; forging billets, $28, eastern mill.

**Old Material.**—Eastern consumers of old material continue to represent their requirements by small-lot buying and the market is rather quiet. Prices remain soft and the general tone of the situation is one of uncertainty. Heavy steel is easy and the mills are reducing the prices which a short time ago they were willing to pay. However, none of them, apparently, is in urgent need of material. Buyers report having obtained odd lots of steel close to $13, delivered at the works. Wrought pipe shows a further decline and the leading eastern buyers have cut their offers about 25 per cent.

We quote gross tons delivered in eastern Pennsylvania consuming territory as follows:

| | |
|---|---|
| Old steel rails (rerolling) | $15.75 to 16.25 |
| Heavy melting steel | 13.50 to 14.00 |
| Old car wheels | 13.75 to 14.25 |
| Old iron car axles | 25.00 to 26.00 |
| Old steel car axles | 20.00 to 21.00 |
| No. 1 railroad wrought | 16.00 to 16.50 |
| Wrought pipe | 12.75 to 13.00 |
| Cast borings | 8.75 to 9.25 |
| Wrought turnings | 8.50 to 9.00 |
| Heavy cast scrap | 14.00 to 14.50 |
| Railroad malleable | 13.50 to 14.00 |
| Stove plate | 10.50 to 11.00 |

# NEW YORK

## Pig Iron Market More Active—Railroad Buying Spasmodic.

Office of THE IRON TRADE REVIEW,
1115 West Street Bldg., Nov. 15.

**Iron Ore.**—Chartering of iron ore cargoes was done the past week at 9s from Carthegena, Spain, to Philadelphia, and at 10s from Greece to New York. These represent the level of freights that has prevailed for several weeks. Ore is practically unsalable in the east at present, as current requirements are filled and the furnaces are having difficulty in handling the additional incoming shipments.

**Pig Iron.**—Considerable freedom in the closing of negotiations and in the putting out of new inquiries has been present in the eastern market during the past week. It is not clear, however, that this condition is directly attributable to stronger sentiment arising from election results as the market displayed about the same scale of activity over the several weeks preceding that event. If there have been any effects of the election influence, they have been favorable, as satisfaction with results appear general. Interesting developments of the week have applied to the railway equipment companies. The New York Air Brake Co., which has been considering the advisability of purchasing for the past two months, is now about to put out its inquiries for forward requirements on quite a large scale, esti-

mated at from 10,000 to 15,000 tons. Despite contrary reports, this inquiry is not yet before the trade, but will probably be out very soon. The American Brake Shoe & Foundry Co., which usually buys in small lots, also has out some inquiries, including one of 500 tons of malleable. Sales of the week have included 2,000 tons of No. 3 and No. 2 plain for November and December to a New Jersey machinery builder and two 500-ton lots in New Jersey are also noted. A fair amount of small lot business has been booked. New England selling has not been so active this week. While there has been no advance in prices, there has apparently been some hardening of minimums in some directions, particularly in Buffalo territory, where the market for No. 2X is more consistently held at $14.00, furnace. In Virginia, where recent reports have been current of $12.75, furnace, for No. 2X having been done, a somewhat firmer front is presented. Some eastern Pennsylvania furnaces, however, are still aggressive sellers at concessions and some large blocks of iron have been sold by these interests in the past several weeks. At tidewater, the present minimum for No. 2X is about $15.50. The United States Steel Corporation is about to contract for its requirements of low phosphorus iron at Worcester, Mass., from Jan. 1. Evidence of further curtailment is noted. One of the Thomas Iron Co.'s furnaces at Hellertown, Pa., and the Goshen furnace in Virginia will soon blow out. We quote for prompt and first quarter shipment at tidewater, as follows:

| | |
|---|---|
| Northern foundry No. 1 | $15.75 to 16.25 |
| No. 2X foundry | 15.50 to 15.75 |
| No. 2 plain | 15.00 to 15.25 |
| No. 2 Virginia | 15.80 to 16.30 |
| No. 2 southern foundry | 15.25 to 15.75 |
| Malleable | 15.75 to 16.25 |
| Gray forge | 14.50 to 14.75 |

**Ferro-Alloys.**—Speculative lots of ferro-manganese have been heard of more frequently of late and some of the low prompt prices may be in these directions, but with representative sellers the present minimum of the market is $38.75, seaboard. Such a price applies only to early shipment. An eastern consumer has bought 500 tons for first half at the market and probably 3,000 tons is pending, including one lot of 1,000 tons. In 50 per cent ferro-silicon 600 tons for first half have been sold at $56.50, Pittsburg. The supply of this material for early shipment appears to be limited. We quote 80 per cent ferro-manganese for prompt and forward shipment at $38.75 to $39.00, seaboard, and 50 per cent ferro-silicon at from $56.00 to $56.50, Pittsburg.

**Cast Iron Pipe.**—Some of the cast iron pipe makers have booked some favorable contracts the past week from gas and water companies for first quarter shipment. A number of these consumers feel that the present is a favorable time to close upon their requirements. New public lettings in the east are few. Hartford, Conn., will take bids Nov. 21 on 1,500 tons of pipe. In private work, the Brooklyn Union Gas Co. has closed for 1,400 tons and the Bay Shore Water Co., Bay Shore, L. I., will shortly purchase 1,000 tons. We quote 6-inch pipe at from $21.50 to $22.00, f. o. b. New York, in carload lots.

**Finished Materials.**—The necessities of the case, as felt in varied degrees by different companies continues to result in close prices for fabricated material, as the tonnage offered is insufficient to satisfy all the shops. The railroad patronage, both in structural and other lines, continues spasmodic and at best is small. The attitude of expecting the railroads to start something is still manifested in the situation, but developments are slow. Wire tonnage, which has been running consistently well, is not as heavy in November as in October, but is favorable for the season. Structural lettings of the week in the railroad line have included 350 tons from the Bessemer & Lake Erie, 400 tons from the Erie, and 240 tons from the St. Paul, placed with the American Bridge Co., while the New York, New Haven & Hartford railroad let about 350 tons in small bridges to an independent shop. The Boston Elevated railroad has put out an inquiry for from 4,500 to 5,000 tons for extensions and the Lehigh Valley about 550 tons for small bridges. The Pennsylvania railroad is out with a small bridge in Baltimore and one in Delaware, amounting to about 300 tons. No action has been taken on the Virginian and Baltimore & Ohio railroad's bridge work inquiries for about 3,000 tons. Other lettings include 800 tons to the Riter-Conley Mfg. Co. for a warehouse for the Oil Well Supply Co. at Pittsburg; 450 tons to Paxton & Vierling for the plant of the Omaha Electric Light & Power Co.; 700 tons to the American Bridge Co. for the plant of the Hally Sugar Co., at Huntington Beach, Cal.; and 300 tons to the American Bridge Co. for a smelter building for the Nevada Hills Copper Co. The leading fabricator has also booked an additional order of 700 tons for furnace work for the American Rolling Mill, Middletown, O. Extensions to the plant of the Piermont Paper Co., Piermont, N. Y., 300 tons, have gone to an independent shop. The Fowler Estate building, Detroit, 550 tons, originally reported as having been taken by the McClintic-Marshall Construction Co., may go to the American Bridge Co. The Dearborn building, Seattle, originally estimated at 800 tons, has been revised to require 1,200 tons. There has been no decision on the Bigelow building, Boston, requiring 1,000 tons. R. D. Wood & Co., Philadelphia, are still in the market for 1,500 tons of plates for Los Angeles. Japanese railroads are contemplating the purchase of 66 locomotives and representatives have been in this country conferring with American builders. The bar iron market in the east continues very irregular and prices are ragged. Operations of the mills are quite low.

**We quote, New York delivery, as follows: Angles, 3 to 6 inches x ¼ inch and heavier, 1.56c to 1.61c; beams, 3 to 15 inches, 1.56c to 1.61c; tees, 3 x ¼ inch and heavier, 1.56c to 1.61c; plates, carload, tank, 1.56c to 1.61c; boiler steel, 1.66c to 1.71c; marine boiler, 1.96c to 2.01c; bar iron, 1.37c to 1.42c; soft steel bars, 1.56c to 1.61c.**

**Old Material.**—Shipping and covering upon old contracts is the principal activity in the old material market at present. New buying is very small and in several instances old contracts are being held up. The yards are not accumulating scrap very fast at present from the smaller dealers, as the low level of the market is rather discouraging the passing of scrap between traders. The yards themselves are not selling very freely, except where they are forced to move material. The heavy steel market in New York is again weaker. We quote, gross tons, prices New York dealers will pay at tidewater, with the exception of cast scrap, which has a local demand, as follows:

| | |
|---|---|
| Old car wheels | 12.00 to 12.50 |
| Old iron axles | 21.50 to 22.00 |
| Old steel shafting | 16.50 to 17.00 |
| Heavy melting steel | 11.00 to 11.25 |
| No. 1 R. R. wrought | 13.50 to 14.00 |
| Iron track scrap | 12.50 to 13.00 |
| Wrought pipe | 10.00 to 10.50 |
| Cast borings | 6.75 to 7.00 |
| Wrought turnings | 6.50 to 7.00 |
| Heavy cast scrap | 12.50 to 13.00 |
| Railroad malleable | 12.50 to 13.00 |
| Stove plate | 9.00 to 9.50 |
| Grate bars | 9.00 to 9.50 |

## ST LOUIS

### Week Opened With Sales and Big Volume of Inquiry.

Nov. 14.

**Pig Iron.**—Business opened this morning with a sale of 1,250 tons, in two lots, No. 1 soft and No. 2 foundry for delivery in the St. Louis territory. Southern No. 2 remains firm at $11 to $11.50, Birmingham basis, for delivery over the remainder of the year, with some chance of obtaining the lower figure for first quarter. Actual inquiries outstanding include the following: 1,200 tons of analysis, first half delivery; 1,000 tons analysis, first half; 500 tons No. 1 foundry, November and December delivery; 600 tons No. 2 southern, December and first quarter delivery; 400 to 500

tons high silicon, first quarter; 2,500 tons analysis, first five months delivery; 2,500 tons southern No. 2; 300 tons southern No. 2; 100 tons northern; 1,000 to 2,000 tons malleable Bessemer; 1,000 to 1,200 tons southern No. 2; southern No. 2, tonnage not specified.

Northern iron seems to be firm at $14.50, furnace, the $14 price having apparently disappeared from this market. Our quotations on southern No. 2, delivered, to which the Birmingham freight of $3.75 has been added, follow:

| | |
|---|---|
| Southern No. 1 | $15.50 to 16.00 |
| Southern No. 2 | 15.00 to 15.50 |
| Southern No. 3 | 14.50 to 15.00 |
| Southern No. 4 | 14.00 to 14.50 |

**Coke.**—Very few actual sales of coke are reported, but the market seems a little stronger. Inquiries for small tonnages are reported in the hands of local sales agents. Prices remain as follows:

Best-selected 72-hour Connellsville foundry grades, $2.35 to $2.50 for whole of 1911; 72-hour foundry, $2 to $2.25, on tracks and for immediate delivery; 48-hour Connellsville furnace, $1.60 to $1.85; best 72-hour Virginia foundry, $2 to $2.35; 48-hour Virginia furnace, $1.60 to $1.85. The freight to East St. Louis and St. Louis is $2.80, and $2.70 from the Virginia fields when shipment is destined beyond St. Louis.

**Finished Material.**—The American Bridge Co. is preparing to begin work at once on the barges for the Mississippi River Transportation Co., requiring about 3,000 tons of steel, for which the contract was let last week. The barges will be built at Ambridge, Pa. Very little is doing in structural steel, although considerable building is on paper and may develop within a short time. We quote:

Tank plates, ¼ inch and heavier up to 72 inches wide, $1.90 to $2; from 72 inches to 96 inches, $2 to $2.10; sheets, No. 10, blue annealed, $2.30 to $2.40; bar iron, $1.75 to $1.85; soft steel bars, $1.90 to $2.

**Old Material.**—There seems to be plenty of scrap in the hands of the railroads as well as the dealers, and very little business is transacting. The election does not seem to have affected this branch of the iron industry. We quote nominally as follows:

| | |
|---|---|
| Old car wheels | $13.50 to 14.00 |
| Old iron rails | 14.50 to 15.00 |
| Rerolling rails (4 ft. and over) | 14.25 to 14.50 |
| Old steel rails (2 ft. and under) | 13.00 to 13.50 |
| Light section relayers, 45 lbs. and under, subject to inspection | 21.00 to 23.00 |
| Relaying rails, subject to inspection | 24.50 to 25.00 |
| Frogs, switches and guards | 12.50 to 13.00 |
| Heavy melting steel | 12.00 to 12.50 |
| Shoveling steel | 12.00 to 12.50 |

We quote, net tons, as follows:

| | |
|---|---|
| No. 1 R. R. wrought | $11.75 to 12.25 |
| No. 2 R. R. wrought | 10.75 to 11.25 |
| Arch bars and transoms | 14.50 to 15.00 |
| Knuckles, couplers and springs | 12.00 to 12.50 |
| Shafting | 15.00 to 15.50 |
| Iron car axles | 19.00 to 20.00 |
| Steel car axles | 19.00 to 20.00 |
| Locomotive tires | 16.00 to 16.50 |
| No. 1 country wrought | 10.00 to 10.50 |
| Pipes and flues | 9.25 to 9.75 |
| No. 1 cast, 510 lbs. and less | 12.50 to 13.00 |
| No. 1 busheling | 10.75 to 11.25 |
| No. 2 busheling | 7.00 to 7.50 |
| No. 1 boiler cut | 9.25 to 9.75 |
| Boiler punchings | 11.00 to 11.50 |
| Cast and mixed borings | 5.00 to 5.50 |
| Machine shop turnings | 7.25 to 7.75 |
| Railroad malleable | 10.00 to 10.50 |
| Agricultural malleable | 9.00 to 9.50 |
| Stove plate and light cast scrap | 9.50 to 10.00 |
| Angle splice bars, iron | 13.50 to 14.00 |
| Angle splice bars, steel | 12.50 to 13.00 |

## BUFFALO

### Pig Iron Tone Stronger and Prices Higher.

Buffalo, Nov. 15.

**Pig Iron.**—The tone of the pig iron market is decidedly stronger this week and furnaces have announced a higher schedule of prices with the simple explanation that they no longer care to do business at a loss and are firming up. It has been a good week for orders, the volume of small orders continuing equal to or slightly above the average, and to this was added some business calling for fairly large tonnage, including a large tonnage of foundry iron for a radiator interest, part of which was placed at Buffalo, the balance going to Detroit, Toledo and valley furnaces. It is understood that another radiator interest still has some inquiries out. Inquiries are reported to be coming in moderately well. The General Electric Co. is taking figures on 7,500 tons of foundry grades to be used at the new plant at Erie, Pa.

For the current quarter and the first quarter of 1911, we quote, f. o. b. furnace, as follows:

| | |
|---|---|
| No. 1X | $15.00 to 15.50 |
| No. 2X | 14.50 to 15.00 |
| No. 2 plain | 14.50 to 14.75 |
| No. 3 | 14.50 to 14.75 |
| Gray forge | 14.00 to 14.50 |
| Malleable | 14.75 to 15.50 |
| Basic | 14.75 to 15.50 |
| Charcoal | 17.75 to 18.25 |

**Finished Material.**—The market shows very little change this week. No large lettings are reported, but there is a good deal of smaller business, and specifications are coming in fairly well. Bars and structural shapes are unchanged, but there is fairly good demand for wire products. Building permits issued last week exceeded $225,000 which is a larger total than for several weeks past.

**Old Material.**—A little more interest has been shown in the scrap market this week, and though sales have been light, the situation is more encouraging. The following schedule indicates the run of prices. We quote gross tons, f. o. b. Buffalo, as follows:

| | |
|---|---|
| Heavy melting steel | $12.25 to 12.50 |
| No. 1 railroad wrought scrap | 14.50 to 15.00 |
| No. 1 railroad and machine cast scrap | 13.50 to 14.00 |
| Old steel axles | 17.00 to 18.00 |
| Iron axles | 23.00 to 24.00 |
| Car wheels | 13.75 to 14.25 |
| Railroad malleable scrap | 13.75 to 14.00 |
| Machine shop turnings | 6.75 to 7.00 |
| Cast iron borings | 5.00 to 5.50 |
| Low phosphorus steel scrap | 17.00 to 17.50 |
| Old iron rails | 15.50 to 16.00 |
| Tank iron | 10.75 to 11.00 |
| Sheet iron | 6.50 to 7.00 |
| Stove plate | 12.00 to 12.50 |
| Pipes and flues | 10.25 to 10.75 |
| Grate bars | 11.50 to 12.00 |
| Boiler plate | 11.00 to 11.50 |

## BIRMINGHAM

### Deadlock Between Producers and Consumers of Pig Iron.

Nov. 14.

**Pig Iron.**—Chief interest still centers in business for the first half of next year, and it is evident that there is practically a deadlock between consumers and producers. Consumers argue that if they are still able to get iron for $11 for the remainder of this year, they will eventually be able to cover their requirements for the first half of 1911 without paying the 50 cents premium now being asked by all the southern furnace operators. Not all the producers will admit a willingness to sell for prompt shipment at so low a figure as $11, but such buying as is being done is principally on this basis. Charcoal iron, and special grades of coke iron running high in manganese and low in phosphorus, still bring as good figures as have prevailed for some months past. These irons, however, are only used where required for special work, and therefore, are not subject to the usual fluctuations of the ordinary coke iron market. It is known that larger inquiries are pending, but it is doubtful if any tonnage of any consequence will be booked the current week.

Stocks showed an increase of several thousand tons in October, and it is estimated that there is about 260,000 tons in Alabama furnace yards. There has been no change of consequence in the rate of production. The car shortage for the movement of coal and coke is becoming more pronounced. This is having also some effect on the car supply for moving pig iron.

**Cast Iron Pipe.**—No large bookings are reported by the makers of water and gas pipe. The foundries in Alabama manage to keep a sufficient tonnage booked, however, and this results in a

pretty steady run. There are some few municipal inquiries pending, and as the crops are harvested and turned into money, there is hope that better buying will begin, especially from the agricultural sections of the country. Prices per net ton at Birmingham remain about as follows: Four to 6-inch, $20 to $21; 8 to 12-inch, $19, with gas pipe taking its usual differential of $1 per ton higher.

**Old Material.**—Scrap iron dealers report business in a most unsatisfactory condition. There is less going on now than for many months. Nominal quotations remain about as follows:

| | |
|---|---|
| Old iron rails | $13.50 to 14.00 |
| Old steel axles | 16.50 to 17.00 |
| Old iron axles | 17.00 to 17.50 |
| No. 1 R. R. wrought | 11.50 to 12.00 |
| No. 2 R. R. wrought | 10.50 to 11.00 |
| Dealers' wrought | 10.00 to 10.50 |
| Old steel rails | 11.00 to 11.50 |
| No. 1 machinery | 10.00 to 10.50 |
| No. 1 steel | 10.00 to 10.50 |
| Old standard car wheels | 12.50 to 13.00 |
| Light castings, stove plate | 8.50 to 9.00 |

## British Iron Market.

### Better Position Taken by Raw and Half-Finished Materials.

Office of THE IRON TRADE REVIEW, Prince's Chambers, Corporation St., Birmingnam, Eng., Nov. 5.

While a big business is passing in pig iron, the selling price today is a few pence below that of a week ago, solely because of labor uncertainties. There was a distinct fall yesterday in prices, the market closing at 49s 9d ($12.18) for cash transactions. Stock accumulations proceed at a slightly lower rate, the amount in store now being 488,468 tons. In other markets, sellers are holding to recent prices, the quotation for Derbyshire iron being 49s ($12) for No. 3 on trucks. There is still sufficient confidence to secure better payments for forward business, the Cleveland price for monthly transactions being 50s ($12.24) and for next quarter 50s 7½d ($12.39). On the South Staffordshire market, prices were very firm on Thursday, the position of makers being strengthened by a rise of 6d in coke. Smelters are now among the dissatisfied party, complaining that production of raw material, like that of finished bars, has become unremunerative. Extraordinary pressure is being exercised upon smelters to make concessions, but with expensive production and well filled order books, the demand is ignored. In the Barrow district, there is sufficient business to keep the 24 furnaces in operation, but orders are rather less plentiful. The hematite department continues much stronger than that of ordinary iron, with excellent prospects. Mixed numbers are selling at 63s 6d ($15.54) with 64s ($15.66) for the March quarter and 65s ($15.92) for the June quarter. Rubio ore shares this strong position, and is quoted for present requirements 20s 9d, ($5.8), with 21s ($5.14) to 21s 6d ($5.26) for the first half of next year. In the Sheffield market, Lincolnshire makers are getting a premium on iron for the second quarter of next year.

**Finished Department.**—With one or two exceptions, the finished iron and steel departments are quite satisfactory. The Sheffield armament department continues in a state of constant activity, and there are prospects of increasing battleship requirements from Sheffield firms. These departments will be busy, certainly throughout next year. A very large output of steel is being maintained in the Sheffield district. The railway departments are receiving orders on a moderate scale, not quite sufficient to furnish full employment to all the works. In the forging department, there are some complaints of severe German competition, but the works are very well furnished. The Welsh tin plate trade continues very active, latest returns showing 430 tin plate mills operating, as compared with 401 a year ago. The sheet mills numbered 66 compared with 52. In the Birmingham district, there is a good demand for steel sections and other manufactured lines, and the semi-finished department is well furnished with orders. While more billets and bars are being imported, the local mills are producing on a maximum scale, and are keeping up their prices.

## GERMAN IRON MARKET.

### Some Depression Noted in Trade at Present.

Dusseldorf-Obercassel, Nov. 1.

Improvement in our iron and steel markets ceased about one week ago when, in a few days, bar iron dropped from 110 marks ($26.25) to 95 marks ($22.75). This was caused by one of the members of the new bar iron combination, one of the largest makers of that product, which found itself short of fresh orders and tried to fill up its books at any price. This course of procedure has had a very unfavorable bearing upon the entire market. In fact, business has lost much of its activity and, the winter season being close at hand when the volume of the steel and iron trade naturally becomes smaller, matters are in rather a depressed state at this time. Works are busy with old orders, new ones being few and very small.

The coal and coke markets are a little firmer in view of the season. Pig iron remains firm at unchanged prices, but semi-finished products are rather weak in view of the fact that some new mills, outside of the Stahlwerksverband, have taken to disposing of their products in the open market and are underselling the prices of that syndicate. The very worst situation confronts makers of railway material, and it is known that if such makers depended alone upon what business is coming from the inland orders they would have to close their shops this year. For this reason, every effort is being directed toward securing orders for export. The shipbuilding industry is very active, and in consequence there is comfortable business going in plates, angles, etc. Sheets are in strong demand at 135 marks ($32), but manufacturers insist on asking 140 marks ($33.25). The tube business is in a rather critical state, for after the late tube syndicate had been dissolved there was a wild rush for orders. But this bids fair to stop shortly, as the larger mixed works are buying up the smaller tube works.

# METAL MARKETS.

## New York.

Nov. 15.

**Copper.**—Prices of copper metal have been firm in the local market during the week, and indicate a more satisfactory volume of buying by consumers than do the reported sales. The ruling quotations by producers and dealers is 13c for electrolytic, delivered 30 days, and 12.87½c, cash, New York. Lake copper has sold at 13c. Some of the leading sellers claim to be well sold up for this year, and are asking an advance of from ⅛c to ¼c for early delivery in 1911 on electrolytic and lake, respectively. It is probable the above quotations have been shaded a few points, but it is also likely that a full explanation of such transactions would reveal some special feature which would eliminate them from the class of regular sales. The foreign market displayed some weakness following the publication of American statistics, and the prices of both spot and futures declined about £1 from last week's closing. Good support developed in London yesterday and today, however, and most of the loss was recovered. The underlying conditions of the copper trade both here and abroad are considered

exceptionally good, and only in relation to other important domestic matters yet to be settled is there any feeling of apprehension regarding the future.

The exports of copper since Nov. 1, are 11,403 tons.

**Tin.**—The local market has been quiet, with prices unsteady until today, when higher cables from London gave an upward impetus to local quotations. A few small sales of spot were made at from 36c to 36.35c. Consumers and dealers have bought very little tin; only what was needed to meet immediate requirements. The foreign syndicate is still in control of supplies, and will, it is reported, manipulate the market to serve its interests for some time. The London market has been more active for the last two days, and prices have advanced. Spot closed at £165 10s, and three months at £166. These prices represent a loss of £1 and 10s, respectively, compared with the closing of Nov. 7. Arrivals of tin since Nov. 1 aggregate 2,100 tons, and there are 670 tons afloat. It is generally believed that domestic consumption during November will not exceed the total arrivals for the month.

**Lead.**—A slightly firmer tone is noticeable in the pig lead market. Independent sellers continue to ask 4.45c, in New York, and secure orders. The American Smelting & Refining Co. is quoting shipment lead at 4.40c.

**Spelter.**—Producers of spelter maintain their attitude of indifference, and on a moderate demand prices of the metal keep very firm. Prime western is held at 5.95c, in New York.

**Antimony.**—Some improvement is noted in the demand for antimony, and prices are a shade firmer. Cookson's is 8.12½c; Hallett's is 7.87½c, and Hungarian is 7.37½c.

## Chicago.

Nov. 15.

**New Metals.**—Trading in copper during the week was brisk in spite of the election, although the increased output as shown by the producers' figures is having a quieting effect. Casting copper has been shaded ⅛c and is now quotable at 13c, Chicago. The week past witnessed further advances in the price of spelter, this metal being quotable at 5.95c, Chicago. In spite of the increase in price, spelter sales are holding up very well and orders are coming into the market in sufficient volume to support the quotations. The balance of the list of new metals has been comparatively quiet and no price changes of consequence are noted.

We quote, dealers' selling prices, f. o. b. Chicago, as follows: Lake copper, carload lots, 13¼c; casting, 13⅛c; smaller lots, ¼c to ⅜c higher. Spelter, car lots, 5.77½ to 5.85c; lead, desilverized, 4.35c in 50-ton lots; corroding, 25c per 100 pounds higher; sheet zinc, $7.75 list, f. o. b. La Salle, in car lots of 600-pound casks; pig tin, 37½c. Cookson's antimony, 10½c; other grades, 9¾c to 10¼c.

**Old Metals.**—The market quieted down somewhat last week owing to the excitement of the elections, but the outlook is fairly good and dealers are expecting better business throughout the winter. Orders received early this week indicate a favorable growth of buying sentiment in the trade. Further advances in scrap zinc are expected if the spelter market remains as stiff as it has been during the past week.

We quote, dealers' selling prices, f. o. b. Chicago, as follows: Copper wire, 11¼c; heavy copper, 11¼c; light copper, 10½c; heavy red brass, 10⅜c; heavy yellow brass, 8c; light brass, 6¼c; No. 1 red brass borings, 9¼c; No. 1 yellow brass borings, 6½c; brass clippings, 8c; tea lead, 3.65c; lead scrap, 3.90c; zinc, 4¼c; tin pipe, 32.5c; tin foil, 29.5c; pewter, 23.5c; electrotype plates, free from wood, 4½c; electrotype dross, 3c; stereotype plates, 4½c; stereotype dross, 3¼c; linotype dross, 3¼c; prime slab zinc dross, $78 per ton.

## St. Louis.

Nov. 14.

**Lead and Zinc.**—Choice lots of zinc blende sold as high as $49.50 a ton in the Missouri-Kansas-Oklahoma district last week, with 60 per cent lots selling for $47.

Lead ore brought $54 a ton, an increase of $1 over the previous week. Both lead and zinc were stronger.

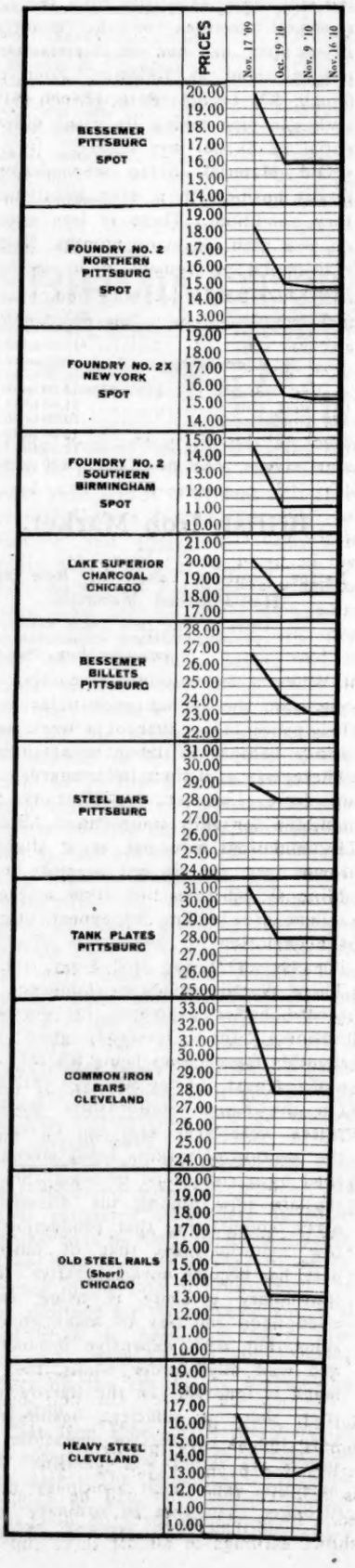
Choice lots of calamine sold for $27 a ton, with 40 per cent grades selling for $26. The total value of ore for the week was $327,721, far in excess of any valuation for quite a number of weeks.

## GRADE CROSSING WORK.

Pittsburg, Nov. 16. (By wire.)

The 12,000 tons of plain material, to be used in the elevation and grade crossing elimination work on the Long Island railroad, for which the Fort Pitt Bridge Co., Pittsburg, has the general contract, will be furnished by an independent steel company. The Jones & Laughlin Steel Co. has taken a contract for 1,600 tons of structural steel for an addition to the Raleigh hotel, Washington, D. C.

## PRICE CHART



## TWO BLAST FURNACES

### To be Built by Pittsburg Steel, as Announced.

Wallace H. Rowe, president of the Pittsburg Steel Co., announces that negotiations have been concluded for increasing the capital stock of that company from $6,000 000 to $14,000,000; that two blast furnaces will be built at the Monessen, Pa., plant and that $3,750.000 bonds now outstanding will be retired Jan. 1, 1911, leaving the company without a debt. The increase will consist of $7,000,000 new 7 per cent cumulative preferred stock and $1,000,000 additional common stock, which will bring the company's capitalization to $7,000,000 preferred and $7,000,000 common stock. Speyers & Co., of New York, have closed negotiations for the purchase of the $7,000 000 7 per cent cumulative preferred stock and the $1,000,000 common stock has been subscribed for by the present owners of the property. The preferred stock will be listed on the New York stock exchange and Speyer & Co. will place same with investors and institutions both here and abroad.

Plans for the new blast furnaces have been under consideration for some time and actual construction likely will be started early next spring. The company now has two contracts for basic pig iron aggregating from 12,000 to 15,000 tons a month, which will expire Jan. 1, 1912. The company now has eight open-hearth furnaces. It is expected that additional open-hearth furnaces and extensions to other departments will be built later.

The present board of directors consists of Wallace H. Rowe, John Bindley, Willis F. McCook, Emil Winter, E. H. Bindley and George Nash. This board will be increased by the election of W. H. Nichols, chairman of the General Chemical Co., New York; William A. Nash, president of the Corn Exchange National Bank, New York; and Henry Rhulander, of Speyer & Co., New York.

The Pittsburg Steel Co. has sold through Speyer & Co., New York, $7,000,000 of 7 per cent cumulative preferred stock, of which $3,750,000 will retire bonds and the balance will be applied to improvements.

The holders of the outstanding bonds will be offered the new preferred stock in exchange for their bonds, which are privileged to be called for payment Jan. 1, 1911. It is believed this offer will be accepted. It is stated that the company shows earnings of almost three times the 7 per cent on its preferred stock for the past five years. Dividends of 8 per cent on the stock outstanding for the past six years have been paid regularly.

## STEEL FOUNDRIES REPORT

### For Year Ending July 31 Makes Encouraging Showing.

Gross sales of the American Steel Foundries for the fiscal year ending July 31 last, were $17,173,470. compared with $7,138,009 the previous fiscal year. Net earnings after all deductions were $1,030,220, compared with $19,845 the previous year.

From the bond sinking fund $138,500 par value of first mortgage bonds were bought and retired during the year, and the balance of the accretions to the fund, together with the annual installment paid to the trustee Oct. 1, will purchase at least $178,500 more, making the total retired or provided for to date $1,155,000 out of the original issue of $3,500,000. Charges aggregating $598,854 were made to the capital account during the year, for real estate, new construction, additions, machinery and equipment. In addition the further sum of $300,582 was spent for replacements and for minor additions and improvements and charged to the depreciation reserve.

In his address to stockholders, President William V. Kelley says:

Since the close of the fiscal year shipments and earnings have been satisfactory, but orders on hand have shown a steady decrease from month to month for several months, and there is as yet no definite betterment in sight, although there is a decided change in sentiment and the opinion seems to be that better business conditions will prevail within a short time.

The company's statement of income follows:

| | | |
|---|---|---|
| Earnings from operation.... | | $1,839,984 |
| Other income: | | |
| Interest, discount and exchange ..... | $ 27,556 | |
| Inc. from investments and loans ..... | 7,698 | |
| Sinking fund profit ..... | 2,053 | |
| Miscellaneous ..... | 18,778 | |
| | | 56,087 |
| Total income ..... | | $1,896,072 |
| Deduct: | | |
| Interest ..... | $232,300 | |
| Sinking fund installment.... | 107,053 | |
| Depreciation ..... | 355,693 | |
| | | 865,851 |
| Balance—net income ..... | | $1,030,220 |

## A COKE PURCHASE.

Pittsburg, Nov. 16. (By wire.)

A contract has been placed in this market for a total of 360,000 tons of Connellsville coke, or 30,000 tons a month for the 12 months beginning Jan. 1. The sale was made on a sliding scale basis. Several sales of this character, involving upward of 60,000 tons a month, are under negotiation and will probably be closed within the next week.

## CONTINUED DECLINE

### Shown by Corporation's Tonnage—Judge Gary's Explanation.

Unfilled orders on the books of the United States Steel Corporation were 2,871.949 tons on Oct. 31, 1910, according to the regular monthly statement issued Nov. 10. These figures established a new low record, passing the low mark of 3,027.436 tons at the close of the quarter of Sept. 30, 1904. Chairman E. H. Gary, however, has issued an explanatory statement to the effect that such a comparison is misleading owing to a different system of compilation of tonnage now followed, which eliminates that business which had been passed between different subsidiaries of the Corporation.

Judge Gary's statement is as follows:

The unfilled orders on hand Oct. 31, 1910, aggregated 2,871.949 tons. This apparently is the smallest amount ever shown on the books, but the comparison is somewhat misleading because the basis has been changed to show only orders received from companies outside of our own interests.

On the old basis the showing would be 3,583,990 tons as of Oct. 31, 1910.

The low figures heretofore shown were 3,027,436 tons as of Sept. 30, 1904, but on the present basis they would have shown 2,434,736 tons.

Since the plan of making monthly announcements has been followed, the statements of business on hand, the tonnage and percentage of decline from the previous month have been as follows:

| | Orders in tons. | Decline. Tonnage. | Per-centage. |
|---|---|---|---|
| Oct. 31, 1910... | 2,871,949 | 286,157 | 9.12 |
| Sept. 30, 1910.. | 3,158,106 | 379,022 | 10.74 |
| Aug. 31, 1910. | 3,537,128 | 433.803 | 10.92 |
| July 31, 1910... | 3,970,931 | 286,863 | 6.72 |
| June 30, 1910... | 4,257,794 | ..... | ..... |

The following table gives a comparative statement of the Corporation's unfilled tonnage at the end of each quarter since early in its history, as shown by the quarterly reports:

| | |
|---|---|
| June 30, 1910 ..... | 4,257.794 |
| Mar. 31, 1910 ..... | 5,403,514 |
| Dec. 31, 1909 ..... | 5,927,031 |
| Sept. 30, 1909 ..... | 4,796.833 |
| June 30, 1909 ..... | 4,057,939 |
| Mar. 31, 1909 ..... | 3,542,595 |
| Dec. 31, 1908 ..... | 3,603,527 |
| Sept. 30, 1908 ..... | 3,421,977 |
| June 30, 1908 ..... | 3,313,876 |
| Mar. 31, 1908 ..... | 3,765,343 |
| Dec. 31, 1908 ..... | 4,624,552 |
| Sept. 30, 1907 ..... | 6,425.008 |
| June 30, 1907..... | 7,603,878 |
| Mar. 31, 1907 ..... | 8,043,858 |
| Dec. 31, 1906 ..... | 8,489.718 |
| Sept. 30, 1906 ..... | 7,936,884 |
| June 30, 1906 ..... | 6,809,859 |
| Mar. 31, 1906 ..... | 7,018,712 |
| Dec. 31, 1905 ..... | 7,605.086 |
| Sept. 30, 1905 ..... | 5,865,377 |
| June 30, 1905 ..... | 4,829.655 |
| Mar. 31, 1905 ..... | 5,579,560 |
| Dec. 31, 1904 ..... | 4,696,203 |
| Sept. 30, 1904 ..... | 3,027,436 |
| June 30, 1904 ..... | 3,192,277 |
| Mar. 31, 1904 ..... | 4,136.961 |
| Dec. 31, 1903 ..... | 3,215.123 |
| Sept. 30, 1903 ..... | 3,278.742 |
| June 30, 1903..... | 4,666,578 |

## FURTHER LESSENING

### Of Ore Carrying Because of Heavy Storms.

The wild weather of the past few days has interfered with the movement of ships and many of the large carriers which expected to make one more trip will go into winter quarters when they reach Lake Erie. This, of course, will tend to further lessen the movement of ore. In fact the ore movement of 1910 would be sensibly under the movement of 1909 were it not for the great strides made during the first months of the season. The slump in the fall months has been the worst ever.

The Standard Oil Co. has given contract to the American Ship Building Co. for the construction of a steamer and barge to carry oil on the great lakes. Both boats will be built at the Cleveland yard and will come out in the spring. Bids for this work were opened at the Standard Oil office in New York, Nov. 13.

Following were the receipts of ore at Lake Erie ports during October:

| | |
|---|---|
| Buffalo | 539,822 |
| Erie | 98,159 |
| Conneaut | 816,184 |
| Ashtabula | 1,169,155 |
| Fairport | 134,098 |
| Cleveland | 713,754 |
| Lorain | 365,402 |
| Huron | 28,011 |
| Sandusky | ..... |
| Toledo | 141,049 |
| Detroit | 48,488 |
| Total | 4,054,122 |

## NO TRUTH IN STATEMENT.

James C. Potter, of Potter & Johnston Machine Co., Pawtucket, R. I., writes us that the published report of a selling combination or any other combination whatever between his company and any other machine shop is utterly without foundation in fact. An item is published in this number of THE IRON TRADE REVIEW, on page 912, which was written upon what was believed excellent authority, Mr. Potter's letter having been received too late to permit of the item on page 912 being "killed." Readers will, therefore, kindly disregard the item printed in another part of the paper.

## MOTORS FINANCING.

The General Motors Co. has recently consummated a plan for refinancing. The company will issue $15,000,000 in 6 per cent bonds, for which an eastern syndicate will pay $12,500 000 in cash, and take as a bonus 25 per cent common and 25 per cent preferred stock. Of the board of nine directors, the appointment of seven will be dictated by the syndicate. Representatives of the syndicate are now offering bankers in the central west the new bonds at 90 and are offering bonuses of 25 per cent of the common stock. If the syndicate should sell the bonds at this figure, it would make a profit of $1,500,000 in cash, and retain 25 per cent of the preferred stock. And it would do all this without investing a dollar in cash.

## RECEIVER WAS NAMED.

Judge Carpenter in the United States district court, on Nov. 12, appointed the Chicago Title & Trust Co. receiver for the firm of L. I. Bregman & Co., old material dealers, 164 Dearborn street, Chicago. The receiver was appointed upon the application of three creditors, Frank W. H. Hill, who has a claim of $5,000; Theodore Weil, who has a credit for $3,606.50, and the Duluth Iron & Metal Co., with a claim of $49.11. The firm is said to have committed an act of bankruptcy on Oct. 10, by paying $2,000 to the Union Trust Co., in preference to all other creditors. It is expected that the embarrassment of the firm will be temporary.

## FURNACE GAS EXPLOSION.

While workmen were starting the gas-driven blowing engines at the Ohio works blast furnace of the Carnegie Steel Co., at Youngstown, O., on Sunday morning, following the banking of the stacks since Saturday, an explosion wrecked the large gasometer and did other damage to property. Fortunately no one was injured. The experiment is being tried at the Ohio works of banking the furnaces over Sunday. It is believed by officials that back-firing of one of the engines caused the explosion.

## INLAND STEEL STATEMENT.

The Inland Steel Co.'s statement for the year shows a balance surplus after paying dividends and allowing $150,000 depreciation, of $910,810, against $651,842 in the previous year when no dividends were paid.

Engineer F. L. Ford, who was engaged some time ago by the Youngstown Chamber of Commerce, Youngstown, O., to look into the railroad situation in that district, read his report last week and recommended the erection of a union depot on the Erie railroad right-of-way, the elimination of railroad crossings and other railroad improvements, which would mean an expenditure of approximately $6,000,000.

## MANY WILL ATTEND

### Testimonial Dinner to be Tendered John Fritz at Philadelphia.

So many responses have been received from representative iron and steel manufacturers and old friends and associates of the guest of honor that much difficulty is being met with by the committee in charge to accommodate all those who have desired to be present at the testimonial dinner to be tendered John Fritz, the veteran iron master, at the Manufacturers' Club, Philadelphia, Thursday evening, Nov. 17. The banquet hall of the club has a seating capacity of about 150, but already a great many in excess of that number have signified their intention of being in attendance. William F. Donovan, of Chicago, will act as toastmaster, and the speakers programed are James M. Swank, manager of the American Iron & Steel Association, Philadelphia; John Birkinbine, of Philadelphia; Charles M. Schwab, president of the Bethlehem Steel Corporation; Rev. Russell H. Conwell, D. D., of Philadelphia; former State Attorney General Hampton L. Carson, of Philadelphia; Joseph E. Thropp, of Earlston, Pa.; Rev. B. F. Agnew, D. D., of Philadelphia, and others. The Rev. Mr. Agnew was formerly pastor of the Presbyterian church at Johnstown, Pa., where Mr. Fritz attended. Andrew Carnegie has been especially invited to attend the dinner as one of the distinguished guests of honor.

## WILL BUILD FOUNDRY.

The Imperial Iron Works, West Duluth, Wis., has started construction of foundations for a foundry to be completed Jan. 1. The building will be 60 x 120 feet. Complete modern equipment will be installed, including a traveling crane.

## LARGE STOCK INCREASE.

Stockholders of the United Engineering & Foundry Co., at a recent meeting in Pittsburg, voted to increase the capital stock by an issue of $2,000,000 in common stock. This will raise the common stock issue to $5,000,000 and the total capitalization to $7,500,000.

Hanging Rock Iron Co. furnace, at Hanging Rock, O., will blow in next week. Napier furnace, Nashville, Tenn., will go out this week for relining and repairs, probably out until first of year.

# RELIEF IS EXPRESSED

## At Results of Elections Held Nov. 8.

### Better Feeling in Iron and Steel Trade Reflected in Leaders' Statements.

Encouragement is felt by iron and steel manufacturers in the various manufacturing centers of the country following the announcement of the results of the state elections, Nov. 8. From cities on the Pacific coast to the Atlantic coast, from the south as well as from the north, came a series of telegraphic messages on Thursday to the DAILY IRON TRADE REVIEW, telling of the relief expressed by manufacturers at the prospect of no further interference with legitimate conduct of business, at least for some time. In some of the centers more inclination to purchase needed materials, both raw and semi-finished, was reported. Since buyers have had more opportunity to observe the trend of events, both political and commercial, in the light of the landslide of Nov. 8, the conviction appears to be gaining strength that prospects have brightened and that better business will be done the coming winter than seemed possible several weeks ago. Among the replies received to messages of inquiry addressed to leading iron and steel manufacturers, were the following:

**Gradual Improvement.**

Cincinnati, Nov. 10. (By wire.)

I anticipate a gradual improvement in business. D. B. Meacham,
Rogers, Brown & Co.

**Improvement Indicated.**

Buffalo, Nov. 10. (By wire.)

The situation is too mixed for me to have any positive ideas as to its effect on business. However, general conditions seem to indicate an improvement in the demand for iron and steel. Wm. A. Rogers.

**Rebuke for Meddlers.**

Philadelphia, Nov. 11. (By wire.)

With the hope that the decisions of the supreme court will be recognized and held sacred, the expressed will of the people would seem to imply that the needless and unreasonable meddling of politicians in and out of office with the proper conduct of private and corporate business will be halted. And with such interference removed, business will revive and prosperity once more be ours, is the opinion of

Yours truly,
Thomas Devlin,
President of the Thos. Devlin Mfg. Co.

**Since the Blow.**

Coatesville, Pa., Nov 10. (By wire.)

As the election is passed and we know definitely what to count on, I think business will now improve steadily. Financial centers, too, will breathe easier since the blow dealt a certain influence.

A. F. Huston,
President Lukens Iron & Steel Co.

**Business Should Respond.**

Johnstown, Pa., Nov. 10. (By wire.)

With the political situation having gone the way the financial and popular sentiment desired, and with any radical tariff or other legislation practically blocked by a Democratic house with a Republican senate and president, business should be assured of reasonably stable conditions, and promptly respond favorably.

C. S. Price,
President Cambria Steel Co.

**Effect on Railway Business.**

Chicago, Nov. 10. (By wire.)

The effect of the election on railway business seems apt to be good, since results certainly cannot be construed as endorsement of radical railway legislation. With the senate Republican and house Democratic, there seems some prospect that railways will not suffer from additional adverse legislation for a while. However, the revival of expenditures by railways depends much more on action of the Interstate Commerce Commission in rate advance cases than on results of election.

Railway Age Gazette.

**Railroad Rate Question Most Important.**

New York, Nov. 11.

I do not think that the election results will materially affect business. Tariff agitation, with any prospect of passing a bill, would disturb business, but I think we have sufficient assurance against hurtful legislation through the opposition of the president and senate. I believe that a favorable settlement of the railroad rate matter is a factor of more immediate influence than politics, as a resumption of normal purchases by the railroads would cause the iron and steel markets to quickly respond by greater activity. The general underlying conditions are unquestionably sound and I take a hopeful view of the outlook for future business.

John A. Topping,
Chairman Republic Iron & Steel Co.

**Have Good Effect.**

Birmingham, Ala., Nov. 9. (By wire.)

Your telegram received. I feel that the disapproval of socialism and of the constant attacks on corporate property which have so injured business, as voiced at the polls on yesterday, will have a good effect on general business. But the iron and steel trade cannot be greatly improved until the Interstate Commerce Commission allows the railroads to make reasonable advances in their tariffs to offset the heavy increase in wages made by the roads. J. C. Maben,
President Sloss-Sheffield Steel & Iron Co.

### SLOSS-SHEFFIELD DIVIDEND.

The Sloss-Sheffield Steel & Iron Co. has passed the dividend on its common stock, which has been at the rate heretofore of 1¼ per cent. An official statement issued gives as the reason for passing the dividend the loss occasioned by lack of ore from its important mine due to flooding for eight or nine months.

### CHANGED ITS NAME.

Announcement is made that at a special meeting of the stockholders of the Youngstown Iron & Steel Roofing Co., Youngstown, O., held Nov. 8, the word "Roofing" was dropped from the firm name, which is now given as the Youngstown Iron & Steel Co.

**On Electric Furnace.**—At the regular monthly meeting of the Engineers' Society of Western Pennsylvania, held Nov. 15, in the Oliver building, Pittsburg, P. McNiven Bennie, of Niagara Falls, N. Y., delivered an address on the electric furnace and its place in iron and steel production.

**Branch Office.**—Pawling & Harnischfeger Co., Milwaukee, Wis., announces that it has opened a branch office in the Washington building, Portland, Ore., in charge of R. K. Morse. Mr. Morse will have charge of the business of Pawling & Harnischfeger Co. throughout the Pacific northwest.

## RAIL ORDERS

**For Next Year's Requirements Are Now Being Booked by the Mills.**

New York, Nov. 16. (By wire.)

Rail orders for next year are now being more freely placed. The Tennessee Coal, Iron & Railroad Co. officially reports 29,000 tons for the Louisville & Nashville railroad, the Carnegie Steel Co. has closed for 5,700 tons with A. Demayo & Co., railroad contractors. The Carnegie Steel Co. also announces that it has booked 15,000 tons of the Norfolk & Western order, reported last week. It is understood that this tonnage represents the Corporation's full portion of this order and that the balance, about 15,000 tons, has gone to the Pennsylvania Steel Co. The Kansas City, Mexico & Orient railroad has placed 8,000 tons with the United States Steel Corporation, but it is not decided what mill will receive it. New York Central engineers have completed their rail requisition for next year, and official action is soon expected.

## PIG IRON PRICES

**Firmer in the East—Pig Iron Producers Meet.**

New York, Nov. 16. (By wire.)

The eastern pig iron situation continues more promising and prices seem to be hardening. The Eastern Pig Iron Association is meeting in Philadelphia today to discuss conditions. Another cast iron pipe maker has put out an inquiry for 6,000 tons of pig iron for delivery through the first quarter.

## AMERICAN STEEL FOUNDRIES BUY BASIC.

Pittsburg, Nov. 16. (By wire.)

The American Steel Foundries has closed for 10,000 tons of basic pig iron over the first half, at a price understood to be in the nighborhood of $13.50, valley. The company's inquiry called for 10,000 to 20,000 tons for delivery at Alliance, O., and Granite City, Ill. This is the first sale of basic reported in this market for some weeks and the first transaction for delivery in 1911. The last sale of basic was made at $13, valley, for November and December shipment. Offers of $13.25, valley, for 3,000 tons of basic for prompt shipment have been rejected.

## ANNUAL REPORT OF OTIS STEEL CO.

The report for the year ending June 30 of the Otis Steel Co., Ltd., with a plant in Cleveland, O., as presented to the British stockholders, and recently made public in the British press, states that profits for the year were £150.232, of which £39,000, representing profits earned but not realized at the close of the financial year, has been placed to suspense account. Too, £14 633 is carried to the service fund in connection with the debenture stock, and £25,000 is written off for depreciation. The balance available is £84,280, to which is added £1.931 brought forward, and the directors add £25,000 to reserve and set aside £20,000 to form the nucleus of a dividend equalization fund. They recommend a dividend on the consolidated stock at the rate of 6 per cent, placing a further £19,800 to service fund for debenture stock, and carrying forward £1,612.

## Personal.

Walter C. Witherbee, of Witherbee, Sherman & Co., has left with a party for a tour of the world.

George Raymond Nichols, of Chicago, has been elected to membership of the board of directors of the McCrum-Howell company.

H. A. Brown has been named assistant treasurer of the Pullman Co.'s manufacturing department. He was formerly acting assistant treasurer.

James A. Campbell, president of the Youngstown Sheet Iron & Tube Co., who, with his wife, has been abroad for some weeks, returned last week to New York, and resumed his duties at Youngstown, O., Tuesday.

H. C. May, who has been in charge of the South Louisville shops of the Louisville & Nashville Railroad, for several years, has declined an offer to become superintendent of motive power of the Monon Railway, with headquarters at the Lafayette, Ind., shops.

## Obituary.

John P. Means, who for years conducted a foundry and machine shop at Steubenville, O., died Nov. 12, aged 70. He was a former mayor of Steubenville.

Wm. C. Joy, aged 77, one of the pioneer manufacturers of steam radiators, died at his home in New York City, Nov. 11. Mr. Joy was president of the Joy Radiator Co., of Titusville, Pa., until that concern was absorbed by the American Radiator Co.

Walter A. Bradley, president of the Chemical Compound Co., died Nov. 13, at his home, 72 Richlawn avenue, Buffalo, after a short illness, aged 44. He was formerly superintendent of the Ames Iron Works, Oswego, and also superintendent of the Phoenix Iron Works at Meadville, Pa.

John Gardiner Buzzell, one of the best known inventors of shoe machinery in the United States, died at Lynn, Mass., recently, aged 83. He was also the inventor of a bicycle wheel which was based on the principle of a pull rather than a pressure upon the spokes and this proved a success. He sold this invention to the Pope Mfg. Co.

John M. H. Robertson, president of the James Robertson Co., Ltd., of Montreal, manufacturer of saws and plumbers' supplies, died in that city Nov. 7, after about a week's illness, aged 42. The business was founded by his father, James Robertson, on whose death some years ago John Robertson became the head of the company, the operations of which have been considerably extended under his control. It has branches in Toronto, Winnipeg, Vancouver and St. John, N. B. Three brothers survive, all of whom are associated in the business.

Austin A. Wheelock, of Boston, vice president of the Firth-Sterling Steel Co., McKeesport, Pa., and actively associated with the iron and steel industry for many years, died suddenly at Washington, D. C., Nov. 9. He was stricken with heart failure while in a cab going from his hotel to his office and death was almost instantaneous. Mr. Wheelock was born in Boston and he made his home in that city practically all his life. He was long associated with the old time steel firm of Jere Abbott & Co., in which he was a partner. After the death of Mr. Abbott this firm was succeeded by that of Wheelock, Lovejoy & Co., of which Mr. Wheelock was the senior member. Mr. Wheelock had important steel interests abroad and he was also associated with copper properties in this country and in Europe. His age was 60.

The property of the Shenango Iron & Steel Co., including a rolling mill at Wheatland, Pa., will be offered for sale, Dec. 21, by the trustee in bankruptcy, Charles C. Murray, of Pittsburg. The sale will take place on the property at Wheatland.

The trustees of the Great Northern iron ore properties have declared a distribution of 50 cents a share on certificates of beneficiary interests, payable Dec. 1.

The General Electric Co. has declared the regular quarterly dividend of 2 per cent, payable Jan. 14.

# IRON AND STEEL SECURITIES

A quiet but irregular market was noted in New York, following the recovery from realizing sales and liquidation which took place the day following election. There appears to be division of sentiment among the more active speculators and unmistakable indecision on the part of the larger operators.

The market opened on Monday dull and irregular; the Copper Producers' report for October showed the third largest production for any month this year, and also a large decrease in unsold stocks. The elections on Tuesday overthrew the Republican majority in the national house of representatives, and reduced the Republican representation in the senate. Wednesday the market opened active but weak and lower, and at the close ranged from 1 to 3½ per cent in the active stocks; Steel common closed at a decline of 3⅛ per cent; Sloss-Sheffield directors passed the common dividend; the government corn estimates showed a new record for that crop. Violent breaks in stocks, followed by light recovery, characterized Thursday's market; the weekly statements of the Bank of England and the Bank of France made a favorable showing. Friday the market was dull and unsettled, closing at small net changes, and sales reaching less than 475,000 shares; the London market was disturbed by political developments; consols declined to a new low record; grain markets were also unsettled, but closed firmer. Saturday's market was unmistakably dull, less than 200,000 shares changing hands, and price changes were insignificant.

| | Closing Quo. Nov. 12 | Changes in week | Annual Meeting Date | 1910 | Stock Outstanding | Basis | Dividend Last Dividend | Dividend Date Last Div. Pay. | |
|---|---|---|---|---|---|---|---|---|---|
| Allis-Chalmers | 9⅞ | + ⅛ | | | $19,820,000 | | | | |
| Allis-Chalmers, pr | 31 | —3¼ | | | 16,150,000 | 7 cum | 1¾ Q. | Feb., | 1904 |
| American Can | 9⅝ | — ¼ | Feb. | 2 | 41,233,300 | | 1¾ Q. | | |
| American Can, pr | 75⅛ | —1⅞ | | | 41,233,300 | 7 cum. | 1¼ Q. | July, | 1910 |
| Am. Car & Fdy | 52½ | —2⅜ | June | 24 | 30,000,000 | | ½ Q. | Oct., | 1910 |
| Am. Car & Fdy., pr | 114½ | — ½ | | | 30,000,000 | 7 n. c. | 1¾ Q. | Oct., | 1910 |
| American Loc | 38½ | —1½ | Oct. | 18 | 25,000,000 | 5 | 1¼ Q. | Aug., | 1908 |
| American Loc, pr | 106 | — ½ | | | 25,000,000 | 7 cum. | 1¾ Q. | Oct., | 1910 |
| American Ship | 79 | ..... | Oct. | 12 | 7,600,000 | 4 | 1 Q. | Sept., | 1910 |
| American Ship, pr | 109 | ..... | | | 7,900,000 | 7 cum. | 1¾ Q. | Oct., | 1910 |
| Am. Steel Foundries(new) | 46½ | —1¼ | Dec. | 1 | 17,184,000 | | 1¼ Q. | Nov., | 1910 |
| Barney & Smith | 30 | ..... | June | 7 | 2,000,000 | 4 | 1 Q. | Dec., | 1910 |
| Barney & Smith, pr | 105 | ..... | | | 2,500,000 | 8 cum. | 2 Q. | June, | 1908 |
| Bethlehem Steel | 32¼ | + ¼ | April | 5 | 14,862,000 | | | | |
| Bethlehem Steel, pr | 61 | — ⅜ | | | 14,908,000 | 7 n. c. | ¾ Q. | Feb., | 1907 |
| Cambria Steel | 43 | —1 | Mar. | 15 | 45,000,000 | 5 | 1½ Q. | Nov., | 1910 |
| Cambria Iron | 45 | ..... | | | 8,468,000* | 4 | 2 S. A. | Oct., | 1910 |
| Chicago Pneumatic Tool | 40 | — ½ | Feb. | 21 | 6,485,800 | 4 | 1 Q. | Oct., | 1910 |
| Colorado Fuel | 33 | —1¾ | Oct. | 17 | 34,235,500 | | 1¾ Q. | Apr., | 1902 |
| Crucible Steel | 123⅝ | — ⅜ | Oct. | 19 | 24,578,400 | | 3½. | | |
| Crucible Steel, pr | 77½ | —1½ | | | 24,436,500 | 7 cum. | 1¾ Q. | Sept., | 1910 |
| Empire Steel | 12 | ..... | Feb. | 23 | 1,254,770 | | | | |
| Empire Steel, pr | 55 | ..... | | | 2,500,000 | 6 cum. | 3 S. A. | July, | 1910 |
| Fay & Egan | 70 | ..... | Feb. | 15 | 1,000,000 | 6 | 3 S. A. | Feb., | 1909 |
| Fay & Egan, pr | 115 | ..... | | | 1,000,000 | 7 cum. | 1¾ Q. | Sept., | 1910 |
| General Electric | 152½ | —2⅜ | May | 10 | 65,179,600 | 8 | 2 Q. | Jan., | 1911 |
| Harbison-Walker | 32 | ..... | Jan. | 17 | 18,000,000 | | ½ Q. | Dec., | 1910 |
| Harbison-Walker, pr | 93 | ..... | | | 9,600,000 | 6 cum. | 1½. | Oct., | 1910 |
| International Pump | 42¾ | —1⅞ | May | 10 | 17,762,500 | | 1 Q. | Nov., | 1910 |
| International Pump, pr | 83⅜ | — ⅜ | | | 11,350,000 | 6 cum. | 1½ Q. | Aug., | 1910 |
| Lackawanna Steel | ..... | ..... | Mar. | 9 | 34,978,000 | | | | |
| Lake Sup. Corp | 24¾ | —1⅛ | Oct. | 5 | 40,000,000 | | | | |
| New York Air Brake | 75 | —2 | June | 16 | 10,000,000 | 8 | 1½ Q. | Oct., | 1910 |
| Niles-Bement-Pond | 98 | ..... | Feb. | 2 | 8,500,000 | 6 | 1½ Q. | Dec., | 1910 |
| Niles-Bement-Pond, pr | 104 | ..... | | | 2,000,000 | 6 cum. | 1½ Q. | Nov., | 1910 |
| Otis Elevator Co | 49 | ..... | Mar. | 21 | 6,375,000 | 3 | 1½ S. A. | Oct., | 1910 |
| Otis Elevator Co, pr | 94 | ..... | | | 6,310,000 | 6 n. c. | 1½ Q. | Oct., | 1910 |
| Pa. Steel | 60 | ..... | May | 9 | 10,750,000 | | | | |
| Pa. Steel, pr | 105 | — ¾ | | | 16,500,000 | 7 n. c. | 3½ S. A. | Nov., | 1910 |
| Pittsburg Coal Co | 20 | —1½ | Mar. | 8 | 28,104,600 | | | | |
| Pittsburg Coal Co., pr | 70 | —3½ | | | 27,071,800 | 7 cum. | 1¼ Q. | Oct., | 1910 |
| Pressed Steel Car | 33⅜ | —1⅞ | Feb. | 16 | 12,500,000 | | 1 Q. | Aug., | 1904 |
| Pressed Steel Car, pr | 96 | — ½ | | | 12,500,000 | 7 n. c. | 1¾ Q. | Nov., | 1910 |
| Pullman | 165¾ | —1⅛ | Nov. | 9 | 120,000,000 | 8 | 2 Q. | Nov., | 1910 |
| Railway Stl. Spring | 34½ | —1 | Mar. | 3 | 13,500,000 | 2 | 1 S. A. | Oct., | 1908 |
| Railway Stl. Spring, pr | 93¾ | ..... | | | 13,500,000 | 7 cum. | 1¾ Q. | Dec., | 1910 |
| Rep. Iron & Steel | 34 | —1½ | Oct. | 19 | 27,191,000 | | | | |
| Rep. Iron & Steel, pr | 97 | —2⅛ | | | 25,000,000 | 7 cum. | 1¾ Q. | Jan., | 1911 |
| Sloss-Sheffield | 49⅞ | —1¾ | Mar. | 9 | 10,000,000 | 5 | 1¼ Q. | Sept., | 1910 |
| Sloss-Sheffield, pr | 114½ | ..... | | | 6,700,000 | 7 n. c. | 1¾ Q. | Oct., | 1910 |
| U. S. Pipe & Fdy. Co | 17¼ | ..... | June | 22 | 12,106,300 | 2 | 1 Q. | Dec., | 1910 |
| U. S. Pipe & Fdy. Co., pr | 55 | —1 | | | 12,106,300 | 7 n. c. | 1¾ Q. | Dec., | 1910 |
| U. S. Steel | 77½ | —3½ | April | 18 | 508,302,500 | 5 | 1¼ Q. | Dec., | 1910 |
| U. S. Steel, pr | 117 | —1½ | | | 360,281,100 | 7 cum. | 1¾ Q. | Nov., | 1910 |
| U. S. Steel 5s | 103⅞ | — ⅛ | | | 463,798,000 | 5 | | | |
| Va. Iron, Coal & Coke | 50 | —4 | Sept. | 20 | 9,073,680 | | 5. † | Oct., | 1907 |
| Westinghouse Elec | 70 | —3½ | July | 27 | 3,998,700* | | 10½ Q.** | Oct., | 1910 |
| Westinghouse Air Brake | 140 | ..... | Oct. | 4 | 13,750,000* | | 5 Q. ‡ | Oct., | 1910 |

Par value of shares, $100, except those starred (*), $50.
**Includes 8¾ per cent on back dividends.
†Stock.
‡Includes 1½ extra and 1 special.

Call money during the week was not so firm, loans being made at rates ranging from 4¾ to 2½ per cent. Time money exhibited the highest rates and the best demand at the opening of the week, but declined after the election results were known. The weekly statement of clearing house banks was favorable; a decrease of more than $15,000,000 in loans was noted and an increase of $3,826,300 in cash reserves. The total surplus in now slightly under $13,000,000. The actual figures of clearing house banks showed: Surplus increased $6,831,775; loans decreased $15,175,500; deposits decreased $12,021,900. Non-member banks and trust companies showed: Loans decreased $7,530,800; net deposits decreased $7,932,900, and the percentage of reserve 17.2, unchanged. Commercial failures for the week in the United States were 207, compared with 258 the preceding week, and 237 the corresponding week last year. Bank clearings in the United States during the week fell off 13.6 per cent from the preceding week, and 20.3 from the corresponding week last year. Bonds were dull but firm. Shares were dealt in to the number of 3,020,600, compared with 2,519,600 the preceding week, and 3,393,350 the corresponding week last year. Bonds, exclusive of government bonds, were sold to the amount of $8,578,000, compared with $10,019,000 the previous week, and $19,570,000 the corresponding week last year.

### Copper Stocks.

**New York.** — Amalgamated Copper closed 68⅛, a net loss of 3⅛.

**Boston.**—Butte Coalition closed 20¾, a net gain of ⅛; Calumet & Arizona closed 57, unchanged; Calumet & Hecla closed 560, unchanged; North Butte Mining closed 35½, a net gain of ⅛; Quincy Mining closed 77, no change.

THE IRON TRADE REVIEW

Devoted to Iron and Steel Manufacture and to the Machinery, Metal-Working and Foundry Trades.

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THE AVERAGE PAID CIRCULATION OF THE IRON TRADE REVIEW FOR THE ISSUES OF THE FOLLOWING MONTHS WAS:

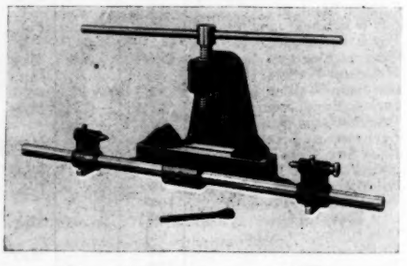
| | |
|---|---|
| January, 1910 | 5,681 |
| February | 5,703 |
| March | 5,754 |
| April | 5,793 |
| May | 5,827 |
| June | 5,842 |
| July | 5,864 |
| August | 5,875 |
| September | 5,895 |
| October | 5,955 |

November 17, 1910

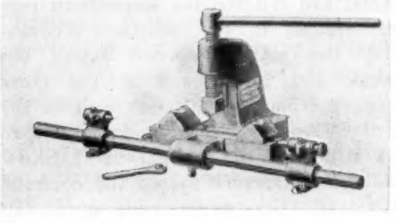
## REAL AND BOGUS MACHINERY NEWS.

We seldom take any space in our columns to talk about ourselves or our policies. We know folks don't want to hear about our troubles and that they will judge our policies by results. But at the present time an explanation is due concerning a recent article which we published, and we take the opportunity of adding a few general observations on the subject of publishing machinery news.

In the weekly edition of THE IRON TRADE REVIEW, of Nov. 3, page 841, there appeared an article which gives a description of what purported to be a new design of a bench straightening press, manufactured by the P. A. Geier Co., of Cleveland. Immediately after the article appeared, a representative of the Springfield Machine Tool Co., Springfield, O., called at this office and stated that the bench straightening press was not new and that it had been manufactured and sold for 23 years by the Springfield company. In support of this statement, a halftone engraving was submitted showing the Springfield machine to be practically identical with that manufactured by the Cleveland concern. Mr. Geier was then called upon to explain why he had given a representative of THE IRON TRADE REVIEW descriptive matter about an old machine. He replied that some slight modifications have been made in the machine as originally turned out by the Springfield company, but he admitted that no new principle was involved. He said he supposed that, if a machine was new to his shop, a description of it was the kind of material that we wanted.



GEIER STRAIGHTENING PRESS.



SPRINGFIELD PRESS.

These facts are cited in justice to the Springfield company, and as a frank confession of error in admitting the description of the machine to our columns. It is, of course, impossible for any editor, even one who has had long practical experience in machine shop work, always to judge unerringly in passing upon the large number of descriptions of alleged new tools and machines which pass over his desk. To say that a machine suddenly becomes a proper subject for a news article because of minor alterations made on a machine long in use, is ridiculous, and it is equally absurd to assert that a live newspaper is justified in revamping a musty description of a machine simply because a new firm makes slight changes in its construction and becomes the selling agent.

THE IRON TRADE REVIEW is always on the alert for new machines or for essential changes in the design of old ones. It is immaterial whether these descriptions are furnished by advertisers or non-advertisers. No advertising contract with this paper includes any guarantee of a line of space in the reading columns. No space in the reading columns is paid for directly or indirectly. If compensation were accepted for material in the reading columns, their value would be instantly vitiated.

In addition to publishing descriptive articles of machine tools and machinery, as well as of manufacturing plants, THE IRON TRADE REVIEW is constantly endeavoring to collect machinery news which will be of real value to our readers. We do not believe that simply by filling page after page with all kinds of stuff about every conceivable kind of plant we can be giving any genuine service to either buyers or sellers of machinery. The collection of actual pointers for new business is attended by great difficulties, but we believe we have made some success in that line, and we shall continue to aim for quality rather than quantity. We believe that the interests of buyers will be promoted by giving them a chance to receive prices from a large number of sellers, and we endeavor to give

all sellers who peruse our columns as many opportunities as possible to bid on new business.

## NO CAUSE FOR ALARM.

Although many causes undoubtedly contributed to the results of the recent elections throughout the country, it cannot be denied that the very severe denunciation of the Payne tariff law, although much of it was unjust, was an important factor in bringing about the defeat of the Republican party The new tariff law, like many others that have preceded it, has been submitted to and has not been approved by the people. In this decision, we believe there is much upon which party leaders and manufacturers might well reflect. If all manufacturers had assumed the attitude taken before congressional committees by the makers of iron and steel, we believe there would have been a much different result in the forming of the bill and in the result of the appeal to popular judgment. With few exceptions, the representatives of the iron and steel interests of the country expressed a perfect willingness to have a reasonable reduction in the tariff on iron ore and steel products made, and such reduction was made. It is a noteworthy fact that throughout the campaign the newspapers and orators of the opposition party had almost nothing to say in criticism of the iron and steel schedule, while there was most emphatic condemnation of the cotton, woolen, sugar and other schedules. The silence of critics as to schedule C was practically an admission that in framing at least that part of the bill no injustice to consumers had been perpetrated. Hence, we believe that the iron trade can look forward with equanimity toward the action of the new congress.

Of the numerous letters and telegrams which we have received in response to our request for expression of opinion as to the effects of the elections upon business, one of the most thoughtful came from Edgar S. Cook, president of the Warwick Iron & Steel Co., Pottstown, Pa., who says:

Upon the principle that "when things are at their worst, they begin to mend," I am in hopes that following upon the election, there may be an improvement in the iron business. One element of uncertainty has been removed, so that if the overwhelming majority against the Republican party really represents the views of the business community, there should be an improved condition, as affecting the demand for pig iron.

While the selling price of pig iron is not as low as it was in 1898, yet our condition as regards margin of profit was better in 1898 than has been the case the past few months. We were able to make a small profit per ton in 1898, notwithstanding that the average for the year for the iron sold was $9.50.

Present market values of iron, and present costs of manufacture, do not afford any profit whatever. Under these conditions, it is only natural to suppose that, if the desires of the voters are represented in the recent elections, the next psychological movement will be in the direction of increased demand, followed by higher prices for pig iron, or such prices as will enable the makers of pig iron to keep their furnaces in operation. At the same time, it may be that the political revolution is very much more extended than the dissatisfied element thought possible, and consequently there may be a revulsion of feeling when it is known that congress may be Democratic in both houses, with the assistance of the so-called Insurgent Republicans.

Before the ways and means of the present congress, undisputed evidence of the increased cost of manufacture referred to by Mr. Cook was presented and had its effect and a similar presentation could easily be made before the next ways and means committee, nor will it be necessary for the iron trade to shrink from the investigation proposed by President Taft's commission. If the president's plan of taking up a revision of the tariff by schedules should be adopted, those schedules to which most vigorous opposition has been made would probably be considered first and if that policy should prevail, it would be a long time before the iron schedule would come up for action. As to the possibility of the combination in the senate of Democrats and Insurgent Republicans, we do not believe there is much danger and even if there should be such a combination, President Taft could be depended upon to veto any unreasonable reduction in the tariff. All things considered, we believe that there are no grounds for uneasiness among manufacturers of iron and steel concerning the revision of the tariff.

## A NATION WIDE PROTEST.

(*Financial Chronicle*, New York.)

Once again faith in popular government has been signally vindicated. Once again the soundness of the judgment of the American people on the great questions of the day has received a convincing and a striking illustration. The mercantile community is interested in this week's remarkable overflow of political control at the elections only so far as it is an index to the political conditions under which business will have to be conducted in the immediate future. In that sense the result must be regarded as assuring in the highest degree. If the political upheaval means anything, it is a nation-wide protest against the revolutionary and noisome doctrines to which certain radical leaders in both parties had in a steadily increasing degree been committing the two parties. Among these leaders ex-President Roosevelt, William J. Bryan and William R. Hearst have been shining lights, and it is one of the most noteworthy achievements of the election that the whole three of them have simultaneously been consigned to oblivion by the popular vote.

## AMERICAN PIG IRON COSTS.

It is hard to realize what a sweeping change has occurred in the American iron industry in the matter of costs since the records for low costs were made in the late nineties. Attention is being directed to the costs of assembling raw materials at merchant blast furnaces in the central west district by reason of the fact that some of these furnaces are operating at an actual loss and converting into cash the ore they have bought rather than carry it in face of a prospective reduction in ore prices next year. * * * All told, there has been an increment cost since 1897-8 of more than $6 a ton, not taking cognizance of the increased costs of various supplies, all of which, without exception, are higher priced.

Against an increase of much more than $6.00 per ton of pig iron there is an increase of only $5.00 in the price of foundry pig iron. The furnaces which made the market in 1897-8 were reputed as not making any profits, or perhaps indeed getting back their relining and other depreciation charges, so that the position today must be an absolutely impossible one. Indeed, no attempt is made to explain it, except on the basis that the furnaces are liquidating now at a certain loss, rather than wait for a later day when the loss would probably be greater.—*Iron and Coal Trades Review.*

## RAILROAD REGULATION

### Advocated by an Erie Official—Investments for the People.

In discussing the cause and effect of the present difficulty American railroads are experiencing in selling securities on favorable terms, J. C. Stuart, vice president and general manager of the Erie Railroad, says:

The time has come when a basis of co-operation such as has never existed must be established between the railroads and the public. A complete understanding must be reached. Those who own the railroads must recognize the temper of the present day public mind. Out of date tactics must be abolished. Buying railroads indiscriminately regardless of public opposition must be done away with. The one man control idea is no longer tenable. What is needed is the proper co-operation of the owners and the managers of railroads with the regulating bodies appointed by the people of this country, and if those who are in power in the railroad appreciated this and carefully entered into such co-operation I believe railroad securities could be made as stable as any other investment in the country, or even more so.

Looking at the railroad situation as I have, and knowing the changes that have occurred in the past 35 years, I had become to a great extent uncertain of the figure of the railroads. I have been much encouraged with the knowledge that men of ability are concerned in the regulation of railroads and this is a more hopeful sign, for while our troubles are not and may not be over for some time, this fact presents the possibility of an intelligent adjustment of conditions rather than complete demoralization.

Through indirect governmental regulation the stability of railroad securities as investments should be established. It has been said, and truthfully too, that foreigners are hesitating about investing in American railroad securities. It would seem to me that the people of this country, particularly those who have put their money into savings banks and who are satisfied with 2½ per cent income, would be only too glad to invest their savings in railroad securities if they had the same confidence in such an investment as now they have in the savings banks.

If this condition could be brought about through the medium of intelligent regulation to maintain the integrity of the investment, I doubt whether American railroad managers would have to spend much time abroad endeavoring to get the working people of foreign countries to invest their earnings in railroad securities. The same method should be adopted in this country that is in vogue abroad. Railroad securities should be issued in small denominations and sold over the counter to the poor people and working classes who now put their money in the saving banks, getting therefor a nominal interest. These would be only too glad to get 4 or 5 per cent on their money if the opportunity was put within their reach. At present they get a smaller return which represents but a portion of the income the savings banks derive from investing the peoples' savings largely in railroad securities.

Intelligent regulation will solve one of the largest problems with which the railroads now have to deal. Intelligent co-operation on the part of the railroads will be a help to this solution and issuance of railroad securities in denominations that will put them within the reach of the working class of moderate means will be another.

## NEW HONOR FOR SIR ROBERT HADFIELD.

Sir Robert Hadfield, eminent steel manufacturer of Sheffield, England, has again been honored by Franklin Institute, which, acting through its committee on science and arts, has awarded him the Elliott Cresson medal, the highest award in the gift of the Institute, for "distinguished, leading and directive work in the advancement of our knowledge of metallurgical science." The Institute made a similar award some years ago after the discovery or invention of manganese steel by Sir Robert, who was then presented the John Scott legacy medal and premium. He was awarded by the Iron and Steel Institute the Bessemer gold medal in 1904, and has received many other honors.

SIR ROBT. HADFIELD.

In speaking of the recent award in a letter to the editor of THE IRON TRADE REVIEW, Sir Robert says:

This further award is still another debt of gratitude I owe to your country. Anything I have done to help on the cause of metallurgy has indeed been a source of satisfaction, as I believe the metallurgist has done more than any other branch of technical science to assist the progress and advance of the world to better things.

Allow me to congratulate you upon the wonderful reception you have recently given to the foreign metallurgists in the recent tour through the principal metallurgical centers of the country, and which ill health alone prevented me from joining.

## PERMANENT EXPOSITION

### Of Safety Devices Will Have Formal Opening.

The formal opening of the Permanent Exposition of Safety of the American Museum of Safety in the auditorium of the Engineers' Society building, 29 West 39th street, New York, will be held Monday evening, Nov. 21. Actual machines, models and photographs will be presented to demonstrate simple and practical safeguards adapted to the needs of the American employer for protecting the lives and limbs of his workmen. Protective devices will be exhibited in connection with motors, elevators, steam boilers, explosives, fires, collapses, falls, loading and unloading, vehicular transportation, railway transportation, marine transportation, aerial transportation, accidents through animals, hand implements and simple tools. The *Scientific American* gold medal will be awarded to the most efficient safety device invented during the last few years and exhibited at the museum. The Travellers Insurance Co.'s gold medal will be awarded to the American industrialist or corporation that has done the most, in the judgment of the American Museum of Safety, for the protection of the lives and limbs of his or its workmen, by means of safety devices for machines and processes. The officers of the American Museum of Safety are: Philip T. Dodge, president; Charles Kirchhoff, vice president; T. Commerford Martin, chairman executive committee; Frederick R. Hutton, chairman committee of plan and scope; Dr. N. E. Ditman, chairman department of sanitation; William J. Moran, counsel, and William H. Tolman, director. Elbert H. Gary, chairman of the United States Steel Corporation, also serves with the officers in an advisory capacity.

**New Electric Line.**—The Woodlawn Southern Railway Co. has been organized and is composed of the following men, who are identified with the Jones & Laughlin Steel Co.: Alexander B. Shepherd, John G. Moore, Ralph E. Reymer, John W. Adams and Walter Copeland. The new electric line will be 7½ miles long and will form a complete circuit, giving better transportation facilities to employes of the Jones & Laughlin Steel Co., at Woodlawn.

The Niles-Bement-Pond Co. has declared the regular quarterly dividends of 1½ per cent on its preferred stock and common stock, the preferred dividend being payable Nov. 15, and the common, Dec. 20.

# "Right Makes Might"

**Souvenir Seal Embodying the Fundamental Principles of the American Iron and Steel Institute**

STAMPED on the menu and place cards, at the recent Chicago banquet of the American Iron and Steel Institute, was a seal embodying, in allegorical form, the fundamental principles of the Institute. The seal was designed merely as a souvenir of the Chicago dinner, but it so thoroughly represents the spirit of right, justice and co-operation, which is the chief characteristic of the Institute, that the suggestion was subsequently made that the design be adopted as a permanent emblem.

Souvenir Seal Stamped on the Menu and Place Cards at the Chicago Banquet of the American Iron and Steel Institute.

The seal may be best described in the words of its designer, T. W. Robinson, first vice president of the Illinois Steel Co. Commenting on the design at the Chicago dinner, Mr. Robinson said:

"As I listened to the various addresses and the discussion at the late Institute meeting in New York, I was impressed by the fact that the American Iron and Steel Institute is a recognition of opportunity for ethical and economic improvement in the world of iron and steel. Stamped upon the menu of the evening is an allegory of the fundamental principles upon which the Institute is builded and of the principles for which the Institute stands. Supplementing Mr. Perkins' remarks concerning the motto, 'Right makes Might', I wish to say that the development of the theme is based in part upon the statement made by Judge Gary at a dinner of the steel manufacturers. He expressed his belief that the world was growing better and voiced his conviction that in business matters the old principle that 'Might makes Right' was destined to be replaced by the sentiment that 'Right makes Might'—a sentiment that should be even more enduring than the steel of which this seal is a record. The treatment of the subject has also been influenced by that passage in Holy Writ, referred to by Mr. Buffington, which says, 'they shall beat their swords into plowshares and their spears into pruning hooks,'—a text worthy of the elaboration of the brotherhood of man and of the metallurgy of steel.

"In its detail there appears the sword and spear transfused by the Alchemy of Wisdom into the plowshare and the pruning hook. From the crucible, for immemorable time the melting pot of nations, there springs the steel of war and the steel of peace.

"These, however, but surround the central motif, the spirit of co-operation, symbolized by the Bird of Immortality—the Phoenix—rising from the ashes of discord, enmity and strife, into the rays of enlightened life.

"In its finality the seal, bound by the sturdy oak and wreathed with leaves of olive, is a laurel to the strength of unity and the gospel of co-operation.

"In behalf of the iron and steel industry of the Middle West, Chicago presents this seal with the hope that it may impress upon us that—

Chaos, destruction, suffering, loss,
Are war's heritage. The sword demands
The creed that 'Might makes Right.'
Invert the sword and it is the cross
Of peace on earth. Good will demands
The truth, that 'Right makes Might."

## BEST REPORT

### In the History of Harbison-Walker Refractories Co.

The eighth annual report of the Harbison-Walker Refractories Co., Pittsburg, mailed to stockholders today, shows that earnings, after deducting $340,717.17 for all ordinary repairs and maintenance, which covers depreciation of plants, were $2,073,340.66, while the net profits for the year amounted to $1,807,746.12. The statement follows:

The eighth annual statement herewith submitted, although the best in the history of the company, is not as favorable as we had hoped it might have been had business continued as good as at the beginning of the fiscal year. On account of the falling off in business, only 75 per cent of the normal capacity of the works was used during the period covered by this statement. The gross business, however, was greater by reason of the increased percentage of high-grade work as explained below. During the past year, the basis on which the business of the company stands has been further strengthened in the following ways:

First.—The use of part of the accumulated surplus in building new plants, all of which are now manufacturing at minimum costs. The increased demand for silica brick in the Chicago district has, in the judgment of the directors, justified doubling the capacity of the East Chicago works (newly built in 1907), making the total capacity 80,000 silica brick per day. The capacity of the Birmingham plant, completed only one year ago, is also being increased from 40,000 to 70,000 brick per day to accommodate the growing demand for brick in that district.

Second.—The aggressive sales policy of the company, adopted several years ago, of going after the small consumers. The company now has on its books 8,000 customers scattered over the United States, Canada and Mexico, a much larger percentage than ever of its output going to such consumers. The business is consequently on a more substantial basis by reason of the larger number of customers and diversified interests to which the company's product is sold, and in dull times like the past year, is not subject to the same shrinkage as though depending on fewer customers in limited lines.

Third.—The ever increasing proportion of difficult high-class fire clay and silica shapes; that is, brick other than standard sizes. During the past year, this class of work has increased several per cent over the previous year, the average selling price per 1,000 of our output by reason of this increased proportion being higher than the previous year, although base prices were, on the average, lower. These difficult shapes require an expensive organization and equipment and several times the capital investment required for standard sizes.

The wages of the employes of the company at all its works and mines were increased from May 1, 1910, on an average of 8 per cent.

In the first annual statement of the company, issued Sept. 30, 1903, mention was made of the fact that the officers and directors were owners of 75 per cent of the preferred and 80 per cent of the common stock of the company. It may be of further interest to the stockholders to know that at the present time 80 per cent of all of the stock of the company is held by directors, officers and employes who are actively engaged in some department of the business. Dividends on common stock at the rate of one-half of 1 per cent per quarter were resumed March 1, 1910. Attention is also called to the fact that sufficient bonds have been cancelled to satisfy the sinking fund requirements until July 1, 1913 In addition to this, $359 000 in bonds of the company, including investment of reserves, are held in the treasury.

The financial statement follows:

| | | |
|---|---|---|
| Earnings, after deducting $340,717.17 for ordinary repairs and maintenance, covering depreciation ..... | | $2,073,340.66 |
| Less: | | |
| Extraordinary expenditures, being repairs and improvements.... | $122,708.36 | |
| Charged off for depreciation of mining and tram outfits..... | 59,358.84 | |
| Charged off for depletion of clay, coal and ganister properties.... | 23,527.34 | |
| | | 205.594.54 |
| Net profit for year.. | | $1,867,846.12 |
| Deduct: | | |
| Interest on bonds..... | $ 88.875.00 | |
| Div. on prefd. stock... | 576,000.00 | |
| Div. on com. stock for three quarters, at rate of 2 per cent per annum ..... | 270,000.00 | |
| | | 934,875.00 |
| Net surplus for the year after charging interest on bonds and dividends..... | | $ 932,871.12 |
| Surplus account: | | |
| As at Sept. 30, 1909..... | | $3,851,988.69 |
| Add net surplus for year..... | | 932.871.12 |
| As at Sept. 30, 1910..... | | $4,784,859.81 |

The annual meeting of the stockholders will be held Jan. 16, 1911. The officers of the company are: President, H. W. Croft; vice president, Hay Walker; vice president, O. M. Reif; secretary, Hamilton Stewart; treasurer, William Walker.

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**Announcement has been made by the Milwaukee Electric Railway & Light Co. that it will erect a $20,000 shop building at Fortieth street, near Cold Springs avenue, presumably to care for its interurban traffic west of the city. The company will be in the market for various machine tools.**

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**The battery of 60 coke ovens recently completed by the Birmingham Coal & Iron Co., at Short Creek, Ala., are being heated preparatory to starting active operations. The ovens are operated wholly by machinery.**

## TRAFFIC CLUB

### Listens to Speeches on Industrial and Political Subjects.

About 350 railroad men and officials of large industrial concerns attended the semi-annual banquet of the Traffic Club of Pittsburg, at the Fort Pitt hotel, Pittsburg, Friday evening, Nov. 11. Among the speakers were B. F. Bush, president of the Western Maryland Railroad Co., of Baltimore, Md.; H. L. Joyce, manager of the marine department of the Central Railroad of New Jersey, and John Temple Graves, associate editor of the Hearst newspapers in New York. President Bush devoted considerable time in discussing plans for the building of the Western Maryland railroad extension between Cumberland, Va., and Connellsville, Pa., where it will connect with the Pittsburg & Lake Erie railroad. Mr. Joyce spoke on "Traffic Fraternity," paying a glowing tribute to traffic men and the industries they represent. Mr. Graves discussed political conditions.

O. M. Ellsworth, general agent of the Rock Island system in Pittsburg, and president of the club, made the opening address, introducing J. F. Townsend, traffic manager of the National Tube Co., who presided as toastmaster. E. C. Sattley, traffic manager of the Page Woven Wire Fence Co., is first vice president of the club.

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## WILL CONSOLIDATE.

An agreement to consolidate interests has been brought about between the Potter & Johnston Co., Pawtucket, R. I., and the Grant & Woods Mfg. Co., Chelsea, Mich., both manufacturers of automatic machinery. The executive and selling headquarters of both plants will be located in Detroit. It is understood that the Chelsea plant will be enlarged, but for the present the Pawtucket plant will not be moved.

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**Chicago Office.**—The Phillips Sheet & Tin Plate Co., of Weirton, W. Va., has established a district sales office in Chicago under the management of J. J. Watson, who has been transferred from the general sales office at Weirton. The new office is located at 1013 New York Life building, La Salle and Monroe streets, Chicago.

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**Bon Air Coal & Iron Co. blew out its Allens Creek No. 2 stack on Oct. 28 and relighted No. 1 stack on Nov. 1.**

## ANNUAL REPORT

### Of Colorado Fuel & Iron Co. For 1909-1910.

The pamphlet report of the Colorado Fuel & Iron Co. for the year ending June 30 last, has just come to hand. The preliminary figures on earnings were published in THE IRON TRADE REVIEW of Oct. 13, but, of course, the full report goes further into detail. In his report to the stockholders, President J. F. Welborn said:

The gross earnings from operation were $23,639,813.08, an increase over last previous year of $3,295,182.12, or 16 per cent; operating expenses were $19,897,197.93, an increase of $2,453,577.95, or 14 per cent; and net earnings from operation were $3,742,615.15, an increase of $841,604.17, or 29 per cent. The net income from all sources was $4,369,534.64, an increase of $1,022,763.35, or 34 per cent.

After providing for all fixed charges, sinking funds, etc., there remains a surplus of $1,506,818.88 carried to the credit of profit and loss. The debit balance in profit and loss account June 30, 1909, was $467,505.30, the lowest it had been since June 30, 1905, when it was $1,877,402.95. The surplus for the past year takes care of this balance, as well as various small charges to profit and loss, and leaves a credit balance in the account amounting to $983,554.09.

The demand for coal was fully up to our capacity during practically all of the year, but operations at the coal mines were so retarded by shortage of railroad cars during the fall and winter months as to cause a loss in output of close to 200,000 tons; yet total coal production for the year was 4,722,832 tons, being 628,481 tons, or 15 per cent, greater than previous year. Of this 3,100,000 tons, or 65 per cent, were sold as coal and in form of coke, and remainder used in operation of steel works and other plants.

The physical condition of the plants has been well maintained and in many respects improved during the year, yet the increasing demand for open hearth steel will make necessary some enlargement of the open hearth department in the near future. The surplus from the past year's operations will enable us to proceed with these additional improvements without borrowing money, and business conditions warrant this increased equipment.

Business for the current year promises well and earnings in the first quarter just closed compare favorably with corresponding period last year. Operations since Aug. 1, however, have been interfered with by shortage of railroad cars to an extent unusual at this season of the year, the loss in coal production during August and September from that cause having been in excess of 100,000 tons.

The consolidated balance sheet of the Colorado Fuel & Iron Co., the Colorado Industrial and subsidiary companies is given herewith. The appraisement of property is noted as of June 30, 1910.

#### ASSETS.

| | | |
|---|---|---|
| Iron ore, coal, limestone and other lands | | $57,650,115.00 |
| Equipment at steel plant, coal mines, coke ovens, etc. | | 28,082,010.53 |
| Railroads | | 5,834,000.49 |
| Cooperage plant | | 34,037.05 |
| Timber lands, franchises, buildings, etc. | | 36,184.41 |
| Store buildings, lots and equipment | | 389,628.45 |
| Inventories—Supplies and manufactured stocks | | 4,033,465.51 |
| Accounts receivable | | 3,111,117.07 |
| Cash on hand | | 2,083,931.00 |
| Bills receivable | | 84,784.05 |
| Securities—Stocks and bonds | | 238,938.90 |
| Cash held by trustees | | 10,049.41 |
| Reserve funds | | 99,840.77 |
| Accrued interest on securities | | 6,017.34 |
| Payment of royalties in advance | | 37,720.38 |
| Total assets | | $102,358,240.96 |

#### LIABILITIES.

| | | |
|---|---|---|
| Capital stock of Colorado Fuel & Iron Co.: | | |
| Common stock | $34,235,500.00 | |
| Preferred stock | 2,000,000.00 | |
| | | $ 36,235,500.00 |
| Funded debt: | | |
| Colorado Fuel & Iron Co. general mortgage 5 per cent bonds | $ 5,515,000.00 | |
| Colorado Fuel & Iron Co. 5 per cent 10-year convertible debentures | 993,000.00 | |
| Colorado Fuel Co. general mortgage 6 per cent bonds | 363,000.00 | |
| Colorado Industrial Co. 5 per cent bonds | 33,848,000.00 | |
| Rocky Mountain Coal & Iron Co. 1st mortgage 5 per cent bonds | 554,000.00 | |
| Grand River Coal & Coke Co. 1st mortgage 6 per cent bonds | 877,000.00 | |
| Pueblo Realty Trust Co. 6 per cent mortgage bond | 575,000.00 | |
| | | 42,725,000.00 |
| Accounts payable, pay rolls, etc. | | 1,908,629.24 |
| Accrued bond interest, not due | | 862,746.68 |
| Accrued taxes, not due | | 113,500.00 |
| Total liabilities | | $ 81,845,375.92 |
| Excess of assets over liabilities | | 20,512,865.04 |
| | | $102,358,240.96 |

The income account for the year is given as follows:

| | | |
|---|---|---|
| Gross earnings from operation | $23,639,813.08 | |
| Operation and management | 19,897,197.93 | |
| Net earnings from operation | $ 3,742,615.15 | |
| Add: | | |
| Income from securities | 499,079.84 | |
| Interest and exch'ge. | 127,839.65 | |
| | | $4,369,534.64 |
| Deduct: | | |
| Bond interest | $ 2,097,682.50 | |
| Taxes | 218,764.64 | |
| | | 2,316,457.14 |
| Surplus over fixed charges | | $2,053,077.50 |
| Less: | | |
| Provision for sinking funds, etc. | $ 171,457.56 | |
| Insurance, etc. | 154,908.11 | |
| Equipment renewal. | 164,945.44 | |
| Traffic Contract Guaranty | 36,000.00 | |
| Prospecting | 18,947.51 | |
| | | 546,258.62 |
| Surplus for fiscal year, to credit of profit and loss | | $1,506,818.88 |

The following statement of production in tons of 2,000 pounds is given:

| | Year ended June 30, '10. | Increase. |
|---|---|---|
| Iron ore mines | 879,630 | 298,846 |
| Limestone quarried | 407,517 | 43,542 |
| Pig iron produced | 385,602 | 90,068 |
| Coal mined:— | | |
| For making coke | 1,566,549 | |
| At company plants | 636,383 | |
| Commercial sales | 2,519,900 | |
| | 4,722,832 | 628,481 |
| Coke manufactured | 905,599 | 260,055 |
| Finished iron and steel | 412,749 | 52,956 |

## LOWER WAGES SHOWN

### By Examination of Bar Iron Makers' Sales Sheets.

The regular bi-monthly examination of sales sheets of the Republic Iron & Steel Co. and other representative bar iron makers, held in Pittsburg, Nov. 12, shows the puddling wage scale for November and December will be based on a 1.35c card, which nets the puddlers $5.87½ a ton, a decrease of 25 cents a ton as compared with the rate for the last two months. The wage scale in the finishing department is decreased 2 per cent. This scale affects puddlers identified with the Amalgamated Association of Iron, Steel and Tin Workers and the Sons of Vulcan.

## PREPARING TO LIGHT ONE FURNACE.

The Southern Iron & Steel Co., which has been repairing its Alabama City, Ala., blast furnace, is said to be planning to blow in this stack about Dec. 1. The company is erecting at Ensley, Ala., two large warehouses, one for the storage of wire and nails and the other for the output of its cooperage department.

## ST. LOUIS SHIPMENTS.

Receipts and shipments of pig lead and spelter at St. Louis for the last two weeks were as follows:

| | Zinc and spelter. | Pigs of lead. |
|---|---|---|
| Receipts:— | | |
| For the week ending Nov. 5 | 101,730 | 51,200 |
| For the week ending Nov. 12 | 104,680 | 42,540 |
| Shipments:— | | |
| For the week ending Nov. 5 | 126,260 | 28,180 |
| For the week ending Nov. 12 | 127,670 | 22,890 |

## TO HOLD ANNUAL MEETING.

Proxies are being taken for the purpose of being voted at the annual meeting of the Alabama Consolidated Coal & Iron Co., to be held in Jersey City, on Nov. 23.

The Grand Trunk Pacific railway has ordered from the American Locomotive Co. a rotary snow plow with a 12-foot cut scoop wheel and cylinders 18 x 26 inches.

# LIVE MACHINERY NEWS

## CLEVELAND

### Several Large Plants Projected but Miscellaneous Tools are in Little Demand.

Cleveland machinery dealers report little change in trade conditions, and there were only a limited number of scattering sales during the week. Inquiries have likewise fallen off to some extent, and aside from several large projects under way, there are few inquiries of note The demand for cranes, hoisting machinery and power plant equipment is somewhat heavier than for machine tools.

The Superior Drop Forge & Mfg. Co., whose incorporation was recently noted, has organized with the following officers: W. H. Lucas, president, F. V. Eurich, vice president and general manager, and C. H. Walker, secretary. This concern has already completed one of the buildings on its plot at 3311-3315 West Seventy-third street, Cleveland. This is the die and machine shop, a 50 x 100-foot, brick and steel building. The equipment for this shop, for which the company is now placing orders, will include screw machines, turret lathes, engine lathes, die sinking machines, shapers, planers, drill presses, universal milling machines and automatic grinders. This building will also be furnished with a portable crane. The company also has two other buildings in the course of erection. The latter will both be 50 x 100 feet, and will be of steel construction, being covered with asbestos-coated sheet metal. One of these structures will serve as the forge shop. It will contain 12 steam hammers ranging from 1,000 to 6,000 pounds falling weight; 12 trimming presses; an up-setting machine, bulldozer, air compressors and blowers. It will also be equipped with two cranes, as will the third building when completed. Most of the larger machinery in the plant will be driven with individual motors. The company expects to have the die and machine room in operation by Dec. 15 and the other two buildings in February. With a great deal of work already booked, the company will begin with 100 men, 50 on the day shift and 50 on the night turn.

The Telephone Improvement Co., a New York corporation capitalized at $3,000,000, has taken preliminary steps for the consolidation of the Telechronmeter Co., Rochester, N. Y., and the North Electric Co., Cleveland. The two latter concerns have been amalgamated into one large shareholding organization, which now owns a controlling interest in the stock of its underlying companies. For the present, however, the identity of the North Electric Co. will be maintained. Its building, No. 408 St. Clair avenue, will be remodeled, the factory space will be increased and more equipment will be added. The entire equipment of the Telechronmeter Co., now in Rochester, will also be added to that of the North Electric Co. A new device, the telechronmeter, for use in telephone exchanges, will be manufactured on a large scale. The North Electric Co. is considering the erection of an addition to its plant, which will also be equipped for the manufacture of the telechronmeter.

The Cleveland Metal Products Co., Cleveland, recently incorporated, is capitalized at $200,000. The company has already commenced work on two brick and steel buildings on a 16-acre tract on Collamer avenue and the Nickel Plate railroad, Collinwood. One of these will be 60 x 170 feet, two stories, and will be used as a press shop for stock steel work. The other will be 80 x 200 feet, one story, with a saw tooth roof and will be used as an enameling shop. Both buildings will be equipped with motors for the various departments and power will be furnished, in the beginning at least, by the Cleveland Electric Illuminating Co. E. A. Dodd, secretary of the Cleveland Foundry Co., is one of the principal incorporators of the new company.

The Baltimore & Ohio railroad is erecting an extensive group of buildings at Chicago Junction, O., which will be in addition to the car repair shops already located there. The new structures will include office, storage and freight buildings, and blacksmith and machine shops. The latter is to be 25 x 100 feet. The contract for the erection of these buildings, most of which will be of frame construction, has been let to P. Farrell, Second National Bank building, Cincinnati. The machinery, boilers, etc., which will form the equipment of the blacksmith and machine shop, will be purchased by E. H. Bankard, Baltimore, purchasing agent of the road.

The Cleveland Co-operative Stove Co., Cleveland, recently completed the installation of 20 motors of various capacities for the operation of the tools in its different departments. Electric current is furnished by the Cleveland Electric Illuminating Co. About six months ago the plant was seriously damaged by fire, and when renewals were decided upon it was concluded to abandon the steam power plant. A blower for operating the cupola, furnished by the American Blower Co., Detroit, has been installed.

The Cleveland Electric Illuminating Co. has awarded a contract to T. H. Brooks & Co. for the structural steel for its $250,000 power plant to be erected at the foot of East Seventy-sixth street, Cleveland. The main power building will be 270 feet square and 70 feet high. The power will be furnished by a 14,000-kilowatt, alternating current, 60-cycle turbo-generator, the contract for which, as well as for the other machinery, has been let to the General Electric Co., Schenectady, N. Y. This plant will probably be placed in operation in August. The Illuminating company has also completed plans for a switch house, contracts for which have not yet been awarded.

The Seneca Chain Co., Kent, O., through the Cleveland Engineering Co., has let the following contracts: Two 150-horsepower, high pressure boilers to the Erie City Iron Works, Erie, Pa.; one 15¼ x 18-inch simple non-condensing engine to the Buckeye Engine Co., Salem, O.; one 175-kilowatt, 240-volt, three-phase, 60-cycle engine type generator and one 10-kilowatt, 120-volt, compound wound, belted exciter to the Allis-Chalmers Co., Milwaukee.

The Norton Machinery Co., 610 Baymiller street, Cincinnati, wants prices on 1,000 to 1,500 cubic feet, steam actuated, air compressors, good for 100-pounds air pressure; on one 200 to 300-cubic foot belt driven compressor, good for 100-pounds air pressure; and on a 100-kilowatt, 200-volt, direct current, direct connected engine and generator.

The Commercial Building Co., R. H. Swetland, Park building, Cleveland, secretary, is preparing to erect a six-story, 90 x 172-foot steel and concrete mercantile building on Euclid avenue, Cleveland. The structure will be equipped with three passenger and three freight elevators, as well as a sprinkling system.

The Damascus Brake Beam Co. is rapidly getting its Cleveland plant ready for occupancy. It will be placed in operation about Dec. 1, and the company expects to employ 250 men. All unfilled orders will be shipped from the Sharon plant before moving.

The Lake Shore & Michigan Southern railroad will soon commence work on a new 80 x 120-foot machine shop. Railroad officials announce, however, that the details of the equipment have not been arranged.

The capital stock of the Mt. Vernon Electric Co., Mt. Vernon, O., has been increased from $10,000 to $300,000 for the purpose of erecting a new power house.

Joseph Dyson & Sons, 5125 St. Clair avenue, Cleveland, manufacturers of forgings, are erecting a small machine shop as well as an office.

The Toledo, O., Railway & Light Co. is preparing to erect a new substation at 408 Front street.

Bremen, O., is reported to be considering the installation of a water works system.

## CHICAGO

**Machinery Merchants Very Hopeful.—Numerous Electrical Contracts.**

The holiday Tuesday and the disturbance incident to the elections interfered somewhat with the activities of the Chicago machinery market during the past week. Nevertheless distribution was fair and machinery merchants, with the possible exception of some members of the machine tool trade, are viewing a future tinted with optimism. General machinery for power plants and for the transmission of power continues to make up the bulk of the sales in this market, the machine tool trade being somewhat quiet. Reports from authoritative sources indicate an unprecedented amount of building in Chicago during the past year and a large amount of this construction consisted of new warehouses and factories and a large sum of money figuring in the building reports was actually used to purchase machinery for the equipment of warehouses, factories and other business buildings.

Announcement has been made of a merger of a number of large manufacturers of power boats and marine gasoline engines having plants in the middle west. The merger represents a capital of $10,000,000, and will be known as the National Boat & Engine Co. The following companies are in the combine: Racine Boat Mfg. Co., Muskegon, Mich.; Truscott Boat Co., St. Joseph, Mich.; Pope Boat Co., Fond du Lac, Wis.; Pierce Motor Boat Co., Racine, Wis.; Shell Lake Boat Co., Shell Lake, Wis.; Western Boat & Engine Works, Michigan City, Ind., and Inland Lakes Boat Co., Geneva, Wis. Newspaper dispatches state that the new company will practically control the entire output of power boats and gasoline engines from Maine to the Mississippi river, but this statement is unquestionably exaggerated. While the combination as reported represents a very large output, it controls only a small fraction of the power boat and engine industries of the United States east of the Mississippi river.

The hydro-electric power plant which is under construction at the falls of the Au Train river near Dixon, Mich., is practically finished, although some additions to the plant will probably be made a little later on. The current generated at present will be utilized in the Munising paper mill and will be transmitted from the power plant to the mill, a distance of about 13 miles, at a pressure of 13,000 volts and will be stepped down to 550 volts for use in the mill. The machinery at present installed consists of two 450-kilowatt General Electric generators, each direct connected to a Pelton water wheel, 24 inches in diameter. The head is about 85 feet. The dam built at present affords practically no storage capacity but a large storage dam can be built farther up the river when it is necessary to add to the capacity of the plant.

The executive committee of the Dakota Portland Cement Co., Chamberlain, S. D., with its engineers, is engaged in a consideration of bids and proposals for the purchase of machinery to be installed in the company's plant now being built at Chamberlain. Contracts have been awarded as follows: 33 electric motors for driving heavy machinery, to the General Electric Co.; large turbines for the power plant, to the Allis-Chalmers Co.; tube mills, driers and rotary kilns to the Power & Mining Machinery Co., Cudahy, Wis. The rotary kilns will be 8 feet in diameter by 125 feet in length and will weigh 115 tons each. Additional machinery will be purchased subsequently. The work is being done under the direction of the Freeborn Engineering & Construction Co., Kansas City, Mo.

The Cleveland-Cliffs Iron Co., Marquette, Mich., is gradually increasing the number of its plants which are operated by electricity. Mines both on the Marquette and Swanzey ranges are being equipped with electric hoists and other electric driven machinery, the old steam plants being discarded, but it will be a couple of years before all the properties will be equipped with electric machinery. The plants now operated by electricity receive their power from the new Maas mine station, as the one on the Swanzey range has not yet gone into commission. The central plants will have a capacity of 1,500 kilowatts, but at the present time only about 500 kilowatts are generated. The additional generating capacity will be added to as the electrical load at the mines increases.

Mandel Bros., Chicago, plan to replace their present building at the northeast corner of Madison and State streets, with a 15-story structure. Located in the basement of the new building will be a modern ventilating system with air washing and temperature controlling devices, which will supply 2,000 cubic feet of pure air per hour for each person on every floor, estimating 1,000 to the floor. There will be 30 elevators of the latest smooth running, hydraulic type and two sets of elevators and excalators for the employes will be installed. Holabird & Roche, Monadnock block, Chicago, are the architects.

Arrangements are being perfected by the Hamilton Utility Co., Benton, Ill., for the construction of an electric plant on property recently acquired in the Martin and Copple addition. It is stated that the equipment of the new plant will include a 350-horsepower engine and that the output will be double that of the old plant. The company also expects to install a water works system and a settling basin. Some of the machinery in the old power house will be removed to the new station and will be used for day service and emergencies.

H. M. Byllsby & Co., 318 La Salle street, Chicago, who control the Red River Power Co., expect to spend approximately $100,000 on improvements to the gas and electric plant at Grand Forks, N. D., in the near future. The work includes the construction of additions to both plants, doubling their capacity and the installation of gas and electric service in every portion of the city of Grand Forks. About 20 miles of pole lines for carrying electricity to residence districts will be put in and four miles of gas mains will be laid.

John Meredith, Joshua Rhodes, Frank M. Zimmerman and others of Aurora, Ill., have incorporated the Fox & Illinois Union Railway, to build an interurban electric line from Yorkville to Morris, Ill., with connecting lines at Dwight and Sandwich.

The Illinois Traction system, Peoria, Ill., is receiving bids on additional rotary converter equipment for substations to be added to the plant of the Jacksonville Railway & Light Co., Jacksonville, Ill.

The Chicago, Lake Shore & South Bend railway, Michigan City, Ind., is building a new sub-station at Charleston, Ill., which will be equipped with two 1,000 kilowatt motor generator sets and frequency changers, with the necessary transformers. This company is also building a new 3-phase, 60-cycle power line from its Michigan City power plant to Hammond, Ind. C. N. Wilcoxon, Michigan City, Ind., is general manager.

Arthur J. O'Leary & Son Forge & Iron Works, 656 W. Lake street, Chicago, is building a new plant. The buildings include a one story main ware house, 80 x 300 feet and a machine shop, forge shop, bolt and stock room, 200 x 211 feet. Reader & Wood, 77 Jackson boulevard, Chicago, are consulting engineers.

Forsyth Bros. Co., 213 Institute Place, Chicago, is erecting a machine shop at Commercial avenue, Harvey, Ill. Patterson & Davidson, 98 Jackson boulevard, Chicago, engineers, are receiving bids for the building which will be 100 x 141 feet, and will cost $20,000.

The St. Paul Business League, St. Paul, Minn., is endeavoring to secure a location for a plant for a knitting company which is capitalized at about $200,000. About 250 employes will be engaged at the proposed plant.

## NEW YORK

**Increased Demand for Machinery Follows the Election.**

A larger number of orders have been placed for machinery with New York dealers since election than for several weeks, but it is too early to determine whether this is indicative of a permanent improvement. It is probable that most of this business had been held up over election day with the intention of closing shortly afterwards regardless of what political change the results might signify. Generally speaking, the feeling is that at least the balance of the month must be taken for observation before a fair estimate can be placed on what the election influence on business is going to be over an extended period. The railroads are still meeting their requirements in small installments, which is accepted as meaning either a real inability to raise funds for improvements exists, or pending the rate discussion, that they deem it advisable to indicate inadequate earnings by placing scattered orders. It is reported, however, that a large total of business is represented by the inquiries in the market, and that much of it is of a character that

cannot be deferred very much longer without impairing operating efficiency. Manufacturers of power machinery, except for small power units, have not taken a normal amount of business in the local market for several months. The activity of the electric service companies in this field in supplying power to office buildings and manufacturing plants is playing a large part in this condition. A large amount of construction work is under way in this territory, which may develop considerable power and heating apparatus business. Builders of cranes and hoisting devices continue well booked ahead, and most plants are running on full time on all orders, but the volume of new business taken this month has been light.

An important contract, closed recently, with Ford, Baum & Davis, consulting engineers, 115 Broadway, New York, calls for a power house to be built at Hurrican, W. Va., for the Clinchfield Coal Corporation, Spartanburgh, S. C. The plant will provide electric lighting and power facilities for the mines of the company near Dante, Va., and nearby towns. A main power plant building and four sub-station buildings will be erected, and a contract has been closed with the Westinghouse Electric & Mfg. Co. for all the electrical apparatus; included in which are two 1,000-kilowatt, 6,600-volt turbines and one 300-kilowatt, 250-volt motor generator sets. Contracts for boilers and other power accessories will be let at an early date. The plant will be ready for operation about April 1, 1911.

The Maxwell-Briscoe Motor Car Co. has completed and is now occupying a large addition to its plant at Auburn, R. I. These consist of two buildings, 85 x 370 feet and 50 x 100 feet, and with the equipment installed the company will be able to manufacture every part of the cars built at this plant. This concern recently made a large purchase of machine tools in the New York market for the requirements of these extensions.

The New York Revolving & Portable Elevator Co., Greenville, Jersey City, N. J., has purchased land on Princeton avenue, and will erect a factory building to replace the plant which was destroyed by fire several weeks ago. The company has distributed a small list of machine tools and power machinery in the local market.

The Consolidated Electric Light Co., Portland, Me., has begun the construction of a new power plant on the Saco river at Bonny Eagle, Me., which, it is said, will eventually be the largest and most important electric power plant in Maine. The first unit to be installed will have an estimated capacity of 6,000 horsepower.

Announcements are made that the financial agreements have been completed for the finishing of the plant of the Atlantic Portland Cement Co. at Stockertown, Pa. The company was organized a few years ago with a capital of $5,000,000 principally by California capitalists, but has never completely carried out its plans.

Representatives of the Merchants' & Manufacturers' Association, of Hagerstown, Md., are negotiating with the New York Central Iron Works Co., Geneva, N. Y., for the removal of its plant to that city. If the works is moved to Hagerstown, it is proposed to erect a plant costing about $100,000 upon a site of five acres.

James Stewart & Co., 30 Church street, New York, have been awarded the contract to construct and equip the 3,000-barrel cement plant to be built for the Knickerbocker Portland Cement Co., at Hudson, N. Y. Specifications for machinery and other equipment will be issued soon.

The Rensselaer Valve Co., Troy, N. of the Rensselaer Mfg. Co., has been incorporated with a capital of $500,000, Y., formed to take over the business and will enlarge the plant of the old manufacturing company. The incorporators are Thomas Breslin and Irvin A. Rowe, Troy, N. Y.

The Monticello Electric Light & Development Co., Monticello, N. Y., has plans under way to construct an electric light plant to cost about $20,000. Blake A. Mapledoram is chief engineer and general manager.

The Midvale Steel Co., Philadelphia, has awarded a contract to W. W. Lindsay & Co., of that city, for the construction of a rolling mill building, 82 x 168 feet, which is estimated to cost $17,000.

Some new mechanical equipment will be required for the additions to be built to the McKinley Training school, Washington, D. C. The commissioners of the District of Columbia will take bids Nov. 21 for the construction of these additions.

Francis W. Brady, 95 Liberty street, New York, is in the market for small rotary air compressors, and rotary or centrifugal pumps to be direct connected to electric motors.

South River, N. J., is in the market for the equipment for an electric light and power plant.

## PITTSBURG

### Conditions Rather Mixed.—Some Improvements Delayed.

The heavier inquiry for machinery noted in this market recently has not resulted in any large amount of business being placed so far, but, with the election out of the way, the outlook is more encouraging. Several large manufacturing interests in the western Pennsylvania section have prepared estimates for extensive improvements to their plants, but authority to begin actual construction will in all probability be held up until next spring. There is a good demand for electrical equipment and machinery for factories and small industrial plants, while builders of cranes and heavy rolling mill equipment report only a moderate amount of new business so far this month. During the early part of the month, the belief was general that new business was being held up on account of the election, but the trade generally now takes the view that most of the proposed new projects will be held up until after the first of the year. A local builder of switch and signal apparatus has prepared estimates for improvements to its plant to cost approximately $100,000 to take care of increased business from western centers, but it is now stated that this work will be held up indefinitely. The railroads are buying more freely, but new business from this source is still very light for this season of the year, as compared with corresponding periods in the past.

All of the Westinghouse companies report heavy bookings and shipments. Ending with Nov. 1, the Westinghouse Electric & Mfg. Co. completed the first seven months of its current fiscal year, during which time it received orders valued at $26,000,000, while shipments were valued at $22,000,000. With every indication that the same monthly ratio will be maintained, the management is sanguine in its expectations of exceeding the previous estimate of a yearly business of $40,000,000 by several million dollars. The company is making extensive improvements in its manufacturing department and others are contemplated. The Union Switch & Signal Co. will close its business year within a few weeks and advance reports indicate that the coming annual report will show an annual business of over $6,000,000. The Westinghouse Machine Co. last month reported record breaking shipments representing about $600,000, as a result of the heavy orders for turbines, gas engines, condensers and stokers. The Westinghouse Air Brake Co. has completed additions to the plant at Wilmerding, Pa., and reports exceedingly heavy business so far this month. Chairman Robert Mather of the Westinghouse Electric & Mfg. Co., with other officials of that concern, has just completed an inspection of the plans and site for the proposed new foundry buildings at Trafford City, Pa., on which it is expected that work will be started in the near future.

Mayor William A. Magee announces that a block of bonds, amounting to about $4,000,000 of the newly authorized $10,305,000 issue, will be placed on sale for some of the proposed improvements outlined in connection with the recent bond issue. The new filtration plant and proposed new pumping station will cost about $3,100,000, while $570,000 will be devoted to sewer system improvements. Mayor Magee also announces that it has not yet been decided when work will be started on the proposed new bridges to cost $1,975,000 and the new city hall to cost $1,500,000.

A contract has been awarded to the Titusville Iron Co., Titusville, Pa., for the installation of a 250-horsepower gas engine at the power plant of the Titusville Electric Light & Power Co. The company had previously installed two 200-horsepower engines in the power plant.

Plans are being prepared by the Cyclops Steel Co. for extensive repairs, including the installation of new machinery for its plant at Titusville, Pa. The company manufactures high speed steel for tools and high grade machine parts.

Bids for improvements to the water plant to cost $15,000 and additions and improvements to the electric light plant to cost $7,500 will be asked shortly by officials of Coraopolis borough.

The Best Improvement Co. has pur-

chased vacant property at Verona, Pa., valued at $31,000, and will build about 100 brick houses for employes of the Best Mfg. Co., which is moving into its new works at Edgewater station, Oakmont.

Engineers of the Pittsburg Railways Co. are preparing plans for extensions to some of its power houses and the erection of repair shops on which work will be started next spring.

The High Grade Oil Refining Co. is reported to have taken an option on a 10-acre tract for a new refinery to be built near Butler, Pa.

Plans have been prepared for a brick and steel warehouse to be erected at the foot of Twenty-sixth street, Pittsburg, for the Oil Well Supply Co.

The National Roll & Foundry Co., Avonmore, Pa., is erecting a one-story crane machine shop addition.

The plant of the Wheeling Hinge Co. is being enlarged.

## DETROIT

### Better Tone of Market With More Inquiries Pending.

Detroit machine tool business did not show much improvement last week, although there seems to be a little better tone to the market in the last few days with more inquiries before the trade. Election is now out of the way and that excuse can no longer be used for not placing orders.

One of the most interesting developments of the week was the consolidation of the Grant-Wood Mfg. Co., with the Potter & Johnson Co., Pawtucket, Mass. The Grant-Wood company is controlled by keen business men who realize the importance of a competent and well organized sales department. This they knew they could not hope to establish except after years of work; so the consolidation was effected with one of the best machine tool companies in this country, which will at once give them an outlet for their lines. Complete details of the organization have not yet been thoroughly worked out, but will be in the near future.

The final settlement for the sale of the General Motors Co. issue of bonds, which has been under negotiation for some 60 days, is closed and it will release a large amount of money that has been tied up, and, no doubt, greatly affect business locally. It is hoped that checks will be mailed this week.

The movement to establish branch Canadian factories took another spurt last week when the Linderman Mfg. Co., Muskegon, Mich., organized the Linderman Co. of Canada, which will locate a factory at Woodstock, Ont., and a large list of machine tools is now in the hands of the trade.

The new plant of The American Ship Building Co., at Port Arthur, will be formally opened Dec. 1. The 700-foot dry dock will permit the largest boat now in use on the Great Lakes to be repaired at this northern point.

William C. Redfield, second vice president of the American Blower Co., left last week on an extended trip around the world in the interests of his company.

The Blesch Metal Mfg. Co. has just been incorporated with $15,000 capital, with Otto Blesch, Edward E. Pratt and Hugh M. Edwards principal stockholders, all of Detroit.

C. W. Kotcher is building an addition to his planing mill, and will install a number of new machines to take care of the finishing department.

The Clark & Eckelberger Co. has been organized to manufacture a line of metal specialties.

## CINCINNATI

### Machinery Dealers Confident Business Will Improve.

The sentiment in favor of better times, as a direct result of the outcome of the election, appears to be gradually growing, and machine tool interests, in harmony with other important manufacturing lines, have caught the spirit of the times and are more optimistic. The opinion of local manufacturers, which appears to be shared by the leading representatives of the large financial interests throughout the country, is, that it is yet too soon to predict with any certainty just how far-reaching the results will be, but that doubtless there will be little concentrated action taken that will indicate any particular increase in activity before the first of the year. Business interests of the city that are presumed to be in close touch with developments in the eastern money market are strongly of the opinion that the sentiment of the people as voiced by the returns, was in strict accord with the line of action indicated by these interests, and that it cannot be but a very short time before the various trunk lines will be found coming into the market with full requisitions for tools and rolling stock. The local situation up to this time presents about the same appearance that has characterized it for a number of months past, with current production about normal, and with orders of a more or less sporadic nature. Foundry conditions continue quiet, and with an exception or two, the melt is said to be considerably below normal capacity.

The D. T. Williams Valve Co. has been delayed in moving into its new location on Spring Grove avenue, on account of labor troubles, that have not permitted the Cincinnati-Bickford people to occupy their new home at Oakley. It is probable, however, that the change of location will be made and the plant in full operation by Jan. 1. Trade in engineering specialties is said to be excellent, and will be largely increased with added floor space capacity. The company has now ready for shipment 54 six-inch brass flanged globe valves made for the United States government according to specifications to be used on several battleships, besides quite a number of specialties for delivery at the Mare Island navy yard. D. M. Forker, who for a number of years was the Cincinnati representative of one of the large pig iron selling agencies in this city, is now connected with the company, and will devote his time in looking after its interests.

There is a rumor current in the city, that the Baltimore & Ohio Railroad Co. is considering the advisability of erecting new shops at Columbus, O., which, in many respects, will equal those at Mt. Clare, Baltimore. At present, shops are in operation at Chillicothe, O., and at Washington, Ind., for car repair purposes only, and it is said that the plans are to build a large plant at a centrally located point, where new rolling stock can be built in addition to general repair work.

The Continental Fibre Co. was incorporated at Columbus during the week, by D. F. Jerauld, V. G. Collis, W. W. Rowland, J. A. Johnston and L. P. Pink, with a capital of $50,000. The company proposes to manufacture wood fibre by an entirely new process, the invention of Charles Colohan, of Lexington, Ky. It is the intention to locate its principal office in this city and build a factory in the hemp fields near Lexington, Ky.

The Oesterlein Machine Tool Co. is only fairly busy, but probably is receiving its share of the new trade offering. Its floor space was very recently increased, and the concern is now in a position to take care of any business that may offer.

James B. Robinson, representing the American Manufacturing Co., of Chattanooga, Tenn., was in the city during the week, for the purpose of securing machinery and supplies for re-equipping the company's plant, which was destroyed by fire recently.

The American Tool Works Co. reports a normal condition of trade, with a moderate increase in new contracts. The business outlook appears brighter and it is expected that the year's closing will be satisfactory.

At a meeting of the board of directors of the J. A. Fay & Egan Co., held Nov. 8, a quarterly dividend of 1¾ per cent was declared, payable Nov. 21.

E. Bauman, prominent in the machine tool industry of Switzerland, is in the city, visiting the various plants in the interest of his people.

The city of Portsmouth will build a new water works plant and has voted the issue of $300,000 in bonds for this purpose.

## TORONTO

### Heavy Demand for Mining Equipment.

The machinery trade is quieter this week owing, probably, to the advance of the season, and there have been few large contracts undertaken lately. Reports as to the business conditions in the west are of an encouraging character, payments for agricultural machinery being well met and the farmers appear to have plenty of money. Now that the winter roads in northern Ontario are becoming available, mining machinery is going forward in large quantities. The Temiskaming & Northern Ontario Railway is finishing the construction of a large freight shed at Kelso, the nearest station to the Porcupine gold region, and

preparing for extensive freight shipment, which will be forwarded by sleighs from that point. The owners of the Timmins property have ordered a 40-stamp mill from the Allis-Chalmers Co. In all seven Porcupine companies have ordered stamp mills for delivery this winter. The Dome mine has placed an order with the Canadian Rand Co. for a 12-mill compressor to be driven by steam, to be forwarded as soon as possible. There is likely to be an active market for mining machinery throughout the winter.

The Canadian Autopress Co., Ltd., has purchased a factory building, one story high, 50 x 100 feet, on Eastern and Carlaw avenues, Toronto, and will build a large addition for the manufacture of printing presses.

The Kingston Locomotive Works has received an order from the Canadian Pacific railway for eight more locomotives, which, in addition to a former order, makes 18 now under contract at this plant.

The plant of the Ontario Wheel Co., Gananoque, Ont., recently burned down, is to be rebuilt at once, the citizens having offered to exempt it from local taxation for ten years.

The town of Dundas, Ont., has contracted with the provincial Hydro-Electric Commission for 600 horsepower of electric energy as a means of encouraging manufacturing.

The Winkley Co. will establish a Canadian branch at Windsor, Ont., for the manufacture of brass goods, at a cost of about $15,000.

Ross & Holgate, Montreal, are preparing to build a large power house on the Magog river.

The Maximilian Machine & Tool Co. will locate a new factory at Woodstock, Ont.

The Cockshutt Plow Co., Brantford, Ont., is building large extensions to its factory.

The Western Canada Power Co. will locate a big plant at Coquitlam, B. C.

The Sidney Electric Power Co. will locate a $500,000 plant at Belleville, Ont.

The Bolton Light, Heat & Power Co. will equip a plant at Bolton, Ont.

The Gurney Scale Co., Hamilton, Ont., is building a new factory.

The Canadian Tube Co. is to build a large factory at Emard, Que.

## WASHINGTON

**Government Awards and Other News.**

Naval awards were made last week as follows: Under schedule 2914, Washington, 12 hoists, to Vermilye & Power, New York, at $391.50; schedule 2909, Washington, class 61, one flat turret lathe, to the Jones & Lamson Machine Co., Springfield, Vt.; class 62, one flat turret lathe to the Jones & Lamson Machine Co., at $1,725; class 63, three geared-head lathes, to the Fairbanks Co., Washington, D. C., at $768; class 64, wire feed screw machine, to H. H. Barton & Sons Co., Philadelphia, Pa., at $582.13; under schedule 2932, class 91, Brooklyn, two stoker engines, to the Griscom-Spencer Co., New York, at $283 and $125; under schedule 2952, class 21, one motor-driven geared-head lathe, to J. P. Kemp, Baltimore, at $864.50.

Bids will be received, as follows, by the paymaster general, navy department, Washington, until Nov. 22: Under schedule 3013, class 1, two electric-driven, compound-geared deck winches and controllers; schedule 3029, Mare Island, classes 32, 33 and 34, bolts and nuts and 12 expanding mandrels. On Nov. 29, bids will be received for the following: Under schedule 3048, Mare Island, classes 11 and 12, 2,500 feet steel tubing, and 12 motor end drills; under schedule 3051, class 31, Newport training station, two turbo-generator sets and two motor-generator sets.

Sealed proposals, indorsed "Proposals for Electric Wiring, Power Extension, etc.," will be received by R. C. Hollyday, chief of the bureau of yards and docks, Washington, D. C., until Dec. 3, for furnishing and installing at the United States naval coal depot, Tiburon, Cal., two boilers, one boiler feed pump, one steel stack, one motor generator set, one transformer, a switchboard, wiring, piping, etc., and for installing a generating set to be furnished by the government.

The following awards for supplies for the Panama canal were made last week: Under circular bulletin, one towing machine, to the Chase Mfg. Co., Cleveland, at $1,200; under circular bulletin, one bench grinder to Manning, Maxwell & Moore, New York, at $30; under circular bulletin, one revolving stone screen, to the Power & Mining Machinery Co., Cudahy Wis., at $422.65, and four flat screens, to the W. S. Tyler Co., Cleveland, at $160.

The commissioners of the District of Columbia, William V. Judson, engineer commissioners, 427 District building, Washington, D. C., contemplate the construction of a hydro-electric plant to supply Washington.

The general purchasing officer, Isthmian canal commission, Washington, will receive bids until Nov. 25, for one Scotch marine boiler and 100, 20-inch, cast iron car wheels.

## MILWAUKEE

**More Hopeful Outlook in the Machine Tool Trade.**

With the fall election over, the machinery situation in Milwaukee and West Allis is gaining a stronger footing and it is believed that a normal condition will be reached in a short time. While there are a number of large plants being run short handed and on short time, there are other concerns that are busy and bemoan the fact that they are unable to meet the demand. Theodore Trecker of the firm of Kearney & Trecker, West Allis, in speaking of the situation, said: "We are meeting with difficulties in trying to fill the orders which are crowding in, but we expect to be better able to handle our business with the completion of our new plant. Machines are being installed as rapidly as possible."

At the recent election the citizens of Milwaukee voted in favor of the erection of a municipal lighting plant. It was decided to issue $250,000 in bonds and $300,000 in mortgage certificates with which to commence the work, but it is generally believed that the project will result in an expenditure of a much larger amount.

The state board of control, Madison, Wis., will buy one 700-gallon high-lift, turbine pump and one 100-horsepower steam engine. Address M. J. Tappins, secretary, state board of control.

Henry Brown, Chippewa Falls, Wis., formerly with the Chippewa Lumber & Boom Co., has commenced the erection of a machine shop.

The Wilton Light & Power Co., Wilton, Wis., has a franchise to construct a light and power plant.

## MISCELLANEOUS

The city of Timmonsville, S. C., will receive bids until Dec. 7, for furnishing and constructing waterworks; a brick reservoir, pumping station, deep well, steel tank and about five miles of 4, 6 and 8-inch pipe will be required. J. N. Johnson, Florence, S. C., is the engineer.

John MacD. Greene, Drexel building, Philadelphia, Pa., wants prices on second-hand, 10-ton, standard gage, self-propelled, locomotive crane, as well as two second-hand, three-drum, hoisting engines with boilers, 25 or 30-horsepower.

It is reported that the Southern railway will immediately begin rebuilding the machine shop and power plant which were recently burned at Princeton, Ind.

Preparations are being made for the construction of an electric power plant by the Southwestern Interurban Electric Railway Co., in Arkansas City, Ark.

The Jellico Cream Co., D. A. Harkness, manager, Jellico, Tenn., wants prices on second-hand, 5 or 6-horsepower, also 12 or 15-horsepower, automatic or throttling engines.

The Union Central Light & Ice Co., Hubbard City, Tex., will install a 250-horsepower engine generator set, and a 250-horsepower boiler; the contract has not yet been awarded.

The Lexington Interurban & Street Railway Co., Lexington, Ky., is considering the construction of a $300,000 power plant.

The city of Dalton, Ga., has sold $125,000 worth of bonds, the proceeds of which will be used to improve the electric light plant.

The city of Sanford, Fla., will, it is reported, install additional machinery to the value of $20,000 in its electric light plant.

Clarence Cosby, Richmond, Va., wants prices on a second-hand, 8 to 10 - horsepower boiler and engine mounted on truck.

The Bartlesville Oil Refining Co., W. H. Coutant, manager, Oklahoma City, Okla., wants prices on electrical equipment for 200 lights.

The Booth Mill, New Bedford, Mass., will add a power plant.

## NEW PRESIDENT

**Chosen for National Rolling Mill Co. at Mansfield, O.**

The National Rolling Mill Co., Mansfield, O., recently re-organized its board of directors and officers, following upon the retirement of H. L. Reed from the presidency. Captain Reed's withdrawal is stated to be due to ill health, he remaining a stockholder and director.

The officers of the National company now are: President, L. A. Ott; first vice president, August Kochheiser; second vice president, C. T. Moriarity; treasurer, P. J. Wigton; secretary, E. C. A. Reed. The directors are: L. A. Ott, August Kochheiser, C. T. Moriarity, P. J. Wigton, E. C. A. Reed, H. L. Reed and A. W. Monroe, the latter of Galion, O.

The company reports business excellent, its output being contracted for until March 1. The new corrugating plant is under roof and other facilities are being planned which will result in larger production.

## EXPORTING STEEL TO GREAT BRITAIN.

Following up the arrival of 1,000 tons of sheet bars at South Wales from the United States in the week of Oct. 22, and the further receipt from the same source of 1,000 tons the next week, further competition by the United States Steel Corporation in Great Britain is noted in the Scotch steel trade by The Ironmonger in its issue of Nov. 5:

It is said they (the Steel Corporation) have been offering large lines of sheet bars at fully 6s a ton under the Scotch prices, and steel strips in 1,000-ton lots at 2s 6d a ton below the Coatbridge figure for iron strips. They have not been very successful so far in doing business, but nothing definite has transpired, as neither sellers nor buyers are disposed to be communicative.

## DEATH OF RALPH SELLEW BUCK.

Ralph Sellew Buck, vice president and manager of the Bridge & Beach Mfg. Co., died at his home, 5220 McPherson avenue, St. Louis, Nov. 11, following an illness of one month. Mr. Buck was a son of Charles H. Buck, founder of the firm of Haven & Buck, stove manufacturers, in St. Louis, in 1846, which concern was succeeded by the firm of Buck & Wright, which later became the Buck's Stove & Range Co.

Mr. Buck was 50 years old and a native of St. Louis. He entered the Buck firm at the age of 17 in 1877, and four years later was elected vice president of the concern. When the firm was reorganized in 1884, he was chosen secretary, and held that position until 1888, when he resigned.

He then joined the Bridge & Beach Mfg. Co., and in April, 1899, he was elected second vice president, which position he held until the death of George H. Holland, when he was made vice president and manager. Much credit is given him for the growth of the company.

Mr. Buck stood high among the men of his industry, and at the time of his death was chairman of the executive board of the National Asso-

RALPH SELLEW BUCK.

ciation of Stove Manufacturers, and a member of the conference committee of the Stove Founders' National Defense Association.

He is survived by a brother—Stephen B. Buck, and two sisters.

## FOREIGN RAIL TRADE.

There is very little fresh moving in the steel rail trade, the only order placed during the week being one for 3,000 tons of 90's for the Bengal-Nagpur railway, which has been taken by Guest, Keen & Nettlefold (Ltd.). New inquiries are of very little moment—1,200 tons of 95's for the Metropolitan and Great Central railways, and 1,200 tons of 30's for the South Indian railway.—The Ironmonger.

The Harbison-Walker Refractories Co. has declared the usual quarterly dividend of one-half of 1 per cent on common stock, payable Dec. 1.

## HAMMERED CHARCOAL IRON BLOOMS AND BILLETS IN 1909.

As ascertained by the American Iron and Steel Association the production of iron blooms, billets, and bars in charcoal bloomaries from pig iron or from pig iron and scrap, for the consumption of the makers or for sale, amounted in 1909 to 56,365 gross tons, against 55,973 tons in 1908, 84,623 tons in 1907, and 94,999 tons in 1906. Similar statistics for 1905 and preceding years were not collected. In 1909 about 1,666 tons of billets and blooms were made with charcoal and soft coal as fuel, but in 1908 charcoal alone was used. In 1907 about 4,513 tons were made with natural gas alone and natural gas and charcoal. Of the production in 1909, 46,772 tons were for the consumption of the makers and 9,593 tons for sale, against 47,870 tons for the consumption of the makers and 8,103 tons for sale in 1908.

The charcoal iron blooms, bars, etc., produced in 1909 were made in Massachusetts, Pennsylvania, Maryland, Kentucky, and Ohio. In 1907 and 1908 the producing states were the same with the exception of Massachusetts.

Forges for the manufacture of blooms and billets direct from iron ore have not been in operation in the United States since 1901, in which year the blooms and billets so made amounted to 2,310 gross tons, against 4,292 tons in 1900 and 3,142 tons in 1899, all made in New York. All the Catalan forges in the United States have long been abandoned.

## WELSH TIN PLATE TRADE.

Swansea harbor trust returns for the week ending Oct. 29, with comparisons, follow:

| | Week of Oct. 29. Boxes. | Previous week. Boxes. | Corresponding week last year. Boxes. |
|---|---|---|---|
| Received | 103,807 | 93,689 | 104,712 |
| Shipped | 123,415 | 97,251 | 57,322 |
| Stocks | 178,220 | 197,828 | 140,472 |

**Directors Pleased.**—The directors of the American Steel & Wire Co. last week made their semi-annual tour of inspection of a number of the plants of the company. The works in the Cleveland and Pittsburg districts, at Allentown, Pa., and at other points were visited and thoroughly looked over. The directors expressed themselves as being specially impressed with the many improvements that have been made in these plants and with the general neatness and efficiency apparent on all sides.

**(In order to assist the post office in delivering letters to new concerns, it is suggested that the names of incorporators be written in the lower left hand part of every envelope addressed to such new companies.)**

**New Buyers:—**

The following manufacturing companies have filed articles of incorporation:

The Excelsior Foundry & Machine Co., Columbia, Miss.; $20,000; by C. B. Rice, W. B. Grand and others.

The Mill Supply Co., Cleveland; $10,000; by Benjamin L. Harris, Abraham Rubin, Walter LeWachs, Ralph W. Sapiro and Isaac M. Rubin.

The Hercules Steel & Iron Co., Portland, Ore.; manufacture machinery; $100,000; by L. G. Carpenter, E. W. Doane and George H. Nicholai.

The Carr Furnace Co., Wheeling, W. Va.; $10,000; by Peebles Tatum, A. S. List, C. E. Blue, W. M. Carr and S. M. Noyes.

The Lone Star Iron Works, Dallas, Tex.; to manufacture gas engines; $100,000; by B. Kinsell, J. H. Leiber, W. S. Myers and others.

The Connolly Steel Casting Co., Chelsea, Mass., $5,000; by James Connolly, John Ashman and Archibald Munroe.

The Klein-Marshall Furnace Co., Canton, O.; G. D. Viers, John E. Hisey, Ray E. Viers, O. T. Clewell, H. W. Penstock; $40,000 capital stock.

The International Water Softening Co., LaSalle, Ill.; $5,000; by William E. Hearst, Samuel A. Griffis, William A. Gibson, Thomas N. Haskins.

The Interstate Metal Co., East St. Louis, Mo.; $10,000; by Louis G. Goetz, Heinrich F. D. Schwahn, Frederick W. Schilling, and Karl Krutzsch.

The Standard Automatic Machine Co., New York City; machinery; $50,000; Louis Sachs, Bernhard H. Levy, Charles J. White, 2 Rector street, New York City.

William Corliss Engine Co., New York City; to manufacture machinery, engines, etc.; $200,000; by William Corliss; I. Gifford Ladd, Providence, R. I.; Edward W. Corliss, 104 Madison avenue, New York City.

The Consolidated Casting Co., Mechanicsville, N. Y.; manufacture and deal in castings of all kinds; $200,000; by Arthur H. Turnbull, Syracuse, N. Y.; Fred Packer, and R. V. Thompkins, Mechanicsville, N. Y.

The William Corliss Valve Co., New York City; to manufacture valves, machinery, etc.; $100,000; William Corliss, I. Gifford Ladd, Providence, R. I., and Edward W. Corliss, 104 Madison avenue, New York City.

The Wilkinson Steam Engineering Co., New York City; to manufactuure and deal in boilers, engines, pumps, etc.; $5,000; by James C. Hitchcock, Frederick Page, 9 Pine street, New York City, Wilbur B. Wilkinson, 2713 Avenue G, Brooklyn, N. Y.

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**New Construction:**

The Dempster Mill Mfg. Co., Beatrice, Neb., is constructing an extension to its foundry, 80 x 100 feet, one story of brick.

The Griffin Wheel Co. is replacing its old frame office in Kansas City, at Twelfth street and the Belt Line tracks with a modern brick structure.

The American Steel & Wire Co. is replacing the broken parts of the engine driving its rod mill at Anderson, Ind. The mill will soon be ready to resume operations.

Citizens of Atlanta, Ga., have organized 12 subscription committees who propose to raise $15,000 wherewith to secure for the Georgia School of Technology the proposed machine shop.

The machine shops and foundry which are being located in the foundry portion of the Marinette Iron Works, Marinette, Wis., will soon be ready to operate. Machinery is now being installed.

The Bayer Soot Blower System, 207 Pine street, St. Louis, has purchased a site for a new factory at 3400 La Salle street, plans for which are now being prepared. A large amount of equipment will be purchased for the machine shop.

The Isaac Joseph Co., 525 Hunt street, Cincinnati, is having plans prepared for a brass foundry to be located on a 75-foot lot adjoining its plant. The company acquired the title to the land several days ago.

The Savill-Chandler Co., Canton, Ill., is building an addition to its foundry and machine shop to include a brick core oven. At the recent meeting of the stockholders, the board of directors was re-elected for another year.

The New York state board of public works has authorized the erection of a two-story brick addition to the state machine shops at Syracuse. The shop will be used in connection with the work on the middle division of the Erie canal.

The Baltimore Copper Smelting & Rolling Mill, Canton, Md., is erecting an addition and installing machinery to increase its monthly output from 8,000 to 10,000 tons. Electrical machinery is being installed for 4,000 horsepower, which will later be increased, supplanting the use of steam engines.

President J. B. Porter, of the Maximillian Machine & Tool Co., Buffalo, has agreed with the industrial committee of Woodstock, Ont., to form a Canadian company and locate at Woodstock, with a capitalization of $100,000. The proposed plant to be used for the manufacture of pneumatic tools.

The Belvidere Screw & Machine Co., Belvidere, Ill., has decided to call in subscriptions for the remaining 50 per cent of capital stock this week in order to continue the construction of the buildings as fast as possible. It is now believed that the shops will be ready for operating earlier than expected.

Construction work has been begun on a new foundry and machine shop at Fort William, Ont., for Lumby-Stenhouse, Ltd., which is a merger of the firms of Lumby & Son and Stenhouse Bros. The foundry equipment will include a 12-ton iron cupola and a brass furnace. It is hoped that the plant will be finished in time to commence operations with the new year.

The Seaboard Pipe Foundry Co., Savannah, Ga., note of whose new buildings was recently made, advises that it is building a foundry 114 x 185 feet, a cleaning room 40 x 60 feet, a tapping room 56 x 100 feet and a storage room 50 x 100 feet. The buildings are to be built of galvanized iron and concrete block or brick. A cupola of 20 tons capacity will be installed. The tapping room will have

a capacity of 15 tons of steel pipe fittings.

Dietrich Bros., 304-362 North street, Baltimore, Md., advising concerning improvements noted recently, state that they consist of the following buildings: Warehouse five stories, 31 x 115 feet; ornamental shop, two stories, 30 x 115 feet; structural shop, 115 x 200 feet. The structural shop will be equipped with punches, shears, cold saws and two electric traveling cranes of 10 or 15 tons capacity. One of the cranes will travel over a large storage yard on a span of about 60 feet.

**General Industrials:**

The Akron Belting Co., Akron, O., has increased its capital stock from $100 000 to $200,000.

The American Foundry Co., Indianapolis, of which C. L. Bieler is president, has increased its capital stock from $26,000 to $40,000.

The Mineral Ridge Mfg. Co., Mineral Ridge, O., miners' supplies, has filed notice of capital increase from $5,000 to $50,000.

The dissolution of the Hartford Machine Tool Co., Hartford, Conn., has just been certified to state authorities by the receiver, Herbert Knox Smith.

The machine shops of J. K. Jackson at Grangeville, Idaho, were sold recently to J. M. Kier. The shops are valued at $8,000 and are 60 x 200 feet, equipped for heavy repairing.

Luther Grinder Mfg. Co., Milwaukee, advises concerning its recently noted increase of capital stock from $50,000 to $100,000 that this was done to provide additional working capital to carry on the rapidly increasing business.

The Machine Parts Co., Elyria, O., whose incorporation was recently noted, advises that the new concern merely takes over the business that has been operated for two and one-half years by the receiver of the former Elyria Machine Parts Co. There will be no other changes.

The General Foundry Co., which has just let contracts for the construction of its proposed buildings at Warren, O., will produce converter steel castings. The officers of the company are: President, E. T. Ward; vice president, W. H. Hulme; secretary, J. E. Coulter; treasurer, C. P. Kennedy.

It is announced that the equipment of the rolling mill of the Louisville Bolt & Iron Co., the plant of which has been idle for several years, is to be transferred to Pittsburg, Kan., where the Western Steel & Iron Co. has been organized for the purpose of operating a mill. The local property has been in the hands of George Holzbog, of the Bauer Machine Co., Jeffersonville, Ind., for some time.

The Oklahoma Iron Works, Tulsa, Okla., advising respecting a recently noted fire, says that the fire was not an expensive one, the damage to the building being estimated at $500. However, since some valuable patterns were stored in the foundry and were lost, the total loss will reach possibly $2,000.

The Erie Engine Works, Erie, Pa., has placed in operation the new gray iron foundry which has been in course of construction on West Twelfth street since the first of the year. The building is 135 x 400 feet. The construction was completed under the personal direction of President William Hardwick.

The plant at the Allentown Foundry & Machine Co, Allentown, Pa., which has been idle for some time, has been sold to Thomas Aiton, of New York, who will use part of it for a factory for braiding insulated wires with machinery, and the remainder will be occupied by the American Stoker Co., also of New York, for a general foundry business.

The Herrick Clay Mfg. Co., 1324 First National Bank building, Chicago, recently organized, will develop 200 acres of silica and clay deposits at Utica, Ill. At present this concern will confine itself to mining but later will erect a plant for the production of fire brick and other allied products.

The American Piston Co., Indianapolis, whose incorporation was noted some days ago, proposes to manufacture a patented piston rod. The capital stock is placed at $30,000. The following officers have been elected: President, E. O. Fitton; vice president, A. H. Schlaegel; secretary-treasurer, Van Dolah Morrison. Plans are under way for building a plant.

The Meadows Sheet Metal Works, Meadows, Ill., with a capital stock of $15,000, was recently organized by the election of the following officers and directors: President, Edwin Whorrall; vice president, R. L. Rathbun; secretary and treasurer, D. N. Claudon; E. Husseman and C. Oyer. By agreement with the Meadows Mfg. Co., the buildings of this concern will be taken over by the new company, Jan. 1.

A number of Carthage, Mo., investors have organized a company which will engage in the manufacture of drills of every description. The capital stock of $50,000 has been subscribed and plans will be drawn for a new plant to be built at Carthage. Temporary officers have been chosen as follows: President, Dr. C. B. Guinn; treasurer, S. C. Boggess; secretary, David Damon; general manager, M. S. Parsons, formerly of the Keystone Driller Co. and inventor of the drills.

George A. Yule was re-elected president and general manager of the Racine Sattley Co., of Racine, Wis., at the recent annual meeting held at Springfield, Ill. Mr. Yule became president and general manager nearly a year ago, when he succeeded Herbert E. Miles. Other officers were elected as follows: Vice president, William Bigelow, Milwaukee; treasurer, Thomas M. Kearney, Racine; secretary, George B. Lowrie, Racine; directors, Charles N. Jillett, of the First National bank of Chicago; William A. Tilden, of the Dearborn National bank of Chicago, and R. Nausten, of the Girard National bank of Philadelphia.

**Trade Note:—**

The Philadelphia office of Matthew Addy & Co. is now established in more commodious quarters at 409-11 Real Estate Trust building. The offices were formerly located in suite 742 of the same building.

The United Steel Co., Canton, O., has opened an office at 518 Park building, Pittsburg. E. B. Blandy, for a number of years sales manager of the Tennessee Coal, Iron & Railroad Co., in New York, has been appointed district representative of the United company.

**Fires:**

The machine shops of C. K. Bullock, manufacturer of elevator machinery at 1361 Ridge avenue, Philadelphia, were damaged, Nov. 1, the loss being estimated at $5,000.

The carriage hardware manufacturing works of H. D. Smith, Plantsville, Conn., was seriously damaged by fire, Nov. 1, the loss being estimated at $125,000.

Fire originating in the foundry of the Hildreth Mfg. Co., Lansing, Mich., on Nov. 7, caused damage estimated at $2,500, covered by insurance.

One of the departments of the Stanley G. Flagg Co., at Pottstown, Pa., was damaged by fire Nov. 4, causing a loss of about $10,000. The fire originated by hot metal falling from the cupola upon wooden joists.

The railroad shops and round house of the Boyne, Gaylord & Alpena railroad at Boyne City, Mich., were badly damaged, Nov. 10. The shops contained a well equipped foundry and machine shop. The loss is estimated at $30,000.

# INSPECTING IRON AND STEEL CASTINGS[1]

## The Work of the Inspector in the Gray Iron, Steel and Brass Foundry and How his Duties May be Facilitated by Co-operation With the Foundryman

By J. A. Gearhart.

The inspection of castings, from the standpoint of the inspector, covers, in the main, just two conditions, good or bad castings. In other words, they are good enough for the service intended, or they are unfit for this service and should be rejected; but in the actual inspection of the work at the foundries, to arrive at these two conditions, considerable responsibility rests on the inspector. He must be able to distinguish a real defect from a slight flaw; he must be able to decide whether a defect, when found, is of sufficient importance to affect the strength or wearing qualities of the casting, or if it is in a part not subject to strain in service and will, therefore, answer the purpose for which it was designed.

### Information for the Inspector.

To inspect castings and be just and fair to both employer and manufacturer, an inspector must know the exact location where the casting is to be used, what its functions are in service, and all other information it is possible for him to obtain, so that he will be competent to decide whether it is good or bad. In checking to dimensions on prints he must know how close to drawing sizes the casting must be in all parts so that it will fit in the place for which it is designed, as it is well known that castings of the same design and made from the same pattern are not always exactly of the same measurements in all their dimensions due to the variations in different heats or casts, as well as differences in the molding and a dozen other variations too numerous to mention.

### Variations in Size.

There are some dimensions where ¼ inch variation can be allowed, either above or below the given size, while on other dimensions 1/16 inch allowance, either way, is too great; some surfaces must be straight and parallel with others so that clearances at other points may be maintained; while other surfaces must be at right angles so that certain points will have equal wear in service.

An inspector must know what pockets are to be cleaned, what corners are to be chipped square, what corners a fillet can be allowed and the largest radii permissable on any fillet. On castings of intricate design, where there are unequal shrinkages, the inspector must know when the manufacturer has cast these with shrinkage brackets to overcome any checking. He must know whether it will be necessary to chip these brackets to the original contour, or if the shrinkage brackets may be left on and the castings accepted. The inspector must know, when he finds a shrinkage crack, if it is of sufficient cause for rejection or if the casting is as good for the purpose intended as one on which no cracks appear. An experienced inspector will generally know, from the shape of the casting and the method of molding, where the shrinkage cracks or blow-holes are most likely to occur. An inspector who knows where and how his castings will be used will save considerable money for the foundryman, as well as time on the delivery of the work for his employer.

### Repairing Defects by Welding.

At the present time, with the different welding appliances used so extensively in steel foundries, it is a question when the inspector finds a casting has been welded whether to accept or reject it, as he has no means of telling how serious the defect was before it was welded. I know of one concern that objected at one time to the welding of any part of its castings, and any castings showing the least indication of welding were rejected at once. Some foundrymen, who had contracts to furnish castings to this company, did all the welding that they required before annealing, after which the surface was ground or chipped smooth and then thoroughly annealed. The castings, when offered to the inspector, were coated with a heavy scale. It was very difficult to tell in these cases if the castings were welded or not. Differences of opinion arose between the manufacturers and the inspectors until so many castings were involved that shipments were seriously delayed and the company needed the castings.

This concern now specifies that all castings to be welded must be first shown to the inspector, and if in his judgment the defect will not affect the strength or wearing qualities and the welding will improve the appearance, he stamps the casting with his private mark near the defect but not close enough to be obliterated in the welding. After the welding has been finished the casting is again shown to the inspector, and if done in a workmanlike manner, is then accepted and restamped near the trade mark or pattern number. This method has worked very successfully and in my opinion is fair to both parties.

### Co-operation of the Inspector.

It has been the author's experience that the best results have been obtained on orders subject to inspection, when the manufacturer and the inspector went over the drawings together so that important dimensions were fully understood and could be watched by the manufacturer in making the patterns as well as in molding and casting. This plan, if followed, will generally save the foundryman considerable money as well as time in completing a contract.

When an order is placed, subject to inspection, and when the first shipment is ready to go forward, a request is sent for the inspector. On his arrival the manufacturer finds for the first time that the castings must fit certain gages on which very small limits of variation are allowed. This generally necessitates the return of the castings to the grinding or chipping room to be made to fit these gages, but in some cases it means their rejection, as they cannot, in their present condition, be made to fit the gages to the satisfaction of the inspector. This could have been avoided if the manufacturer and inspector had conferred together before the work was started and everything gone over and explained. The manufacturer would then have known about the important points on each casting and

(Continued on Page 935.)

[1]Read at the October meeting of the Pittsburg Foundrymen's Association.

# THE 'FRICK' ELECTRIC STEEL FURNACE[1]

## The Design and Operation of the Largest Unit of the Induction Type Yet Constructed

The Frick furnace for melting and heating steel is an induction, or transformer furnace. The heat is produced by a strong electric current of some 20,000 to 200,000 amperes, which by wireless transmission is generated directly in the steel. The hearth is thus in no visible way connected with the dynamo.

### Description of Furnace.

The electrical parts of the furnace are:

(1) Two primary coils of insulated copper strips, which receive a single-phase alternating current of 5 to 15 periods, and surround

(2) A magnetic iron core, built up of thin iron plates, and forming a closed magnetic circuit around the coils; and

(3) The ring-shaped steel bath of uniform cross-section, forming the secondary winding of the transformer.

In big furnaces a third high coil may be placed between the two flat coils to improve the magneto-electric conditions.

The single-phase alternating primary current through the coils sets up an alternating magnetic-flux in the core, which generates a secondary electric current in the ring-shaped metallic circuit formed by the bath in the crucible.

This secondary current is transformed into heat in the same way as the current passing through the filament of an incandescent lamp. Its intensity is equal to primary-current × number of windings in the coils.

In choosing a suitable number of windings, it is possible to adapt the furnace to any voltage between 100 and 5,000 volts. This latter voltage is used in the 1,000-horsepower furnace in the Krupp works in Essen, and has never caused the slightest inconvenience.

(4) Copper connections between the furnace and the switchboard. The leads on the furnace are connected with the leads to the switchboard, either by flexible cables, or if low voltage and big amperage is used, demanding too heavy cables, by a switch arrangement, which disconnects the furnace when tilted.

(5) A switchboard, with usual instruments, as voltmeter, amperemeter, kilowattmeter, electricitymeter, double-pole switches and shunt-regulator to increase or decrease the power, absorbed by the furnace.

If the distance to dynamo is excessive, it might be less expensive to place the shunt-regulator near the dynamo and to use a relay-arrangement to operate it.

The regulating of the current ought always to be managed from the furnace.

The mechanical parts of the furnace are:

(1) A tilting arrangement. Smaller furnaces are tilted on rockers. For larger furnaces (over eight tons) live rollers running on circular paths are more suitable.

The tilting can be carried out by hand with the aid of crab and block, by electricity or by hydraulic means; the latter method is the most convenient. Generally, the center of rotation is slightly above and in front of the center of gravity, so that a comparatively small power is needed for tilting. The only inconvenience of this arrangement is the downward movement of the spout. When it is purposed to cast directly into the molds, a certain advantage is gained by bringing the center of tilting forward to the spout, which thus does not alter its position during casting. This arrangement, which is used in the 1,000-horsepower furnace at the Krupp works, requires a rather expensive beam construction and hydraulic cylinder.

(2) A steel construction to support the furnace body, the transformer, and other appliances. One part of the platform next to the furnace is also fixed to this construction, so as not to interfere with the tilting.

(3) A furnace body, consisting of a sheet iron casing on two strong beams, resting loose on the steel construction. In case of repair, the whole furnace body can thus be carried away, and in less than two hours can be replaced by a spare one, thus enabling the plant to work nearly continuously. To prevent any current passing outside the metallic

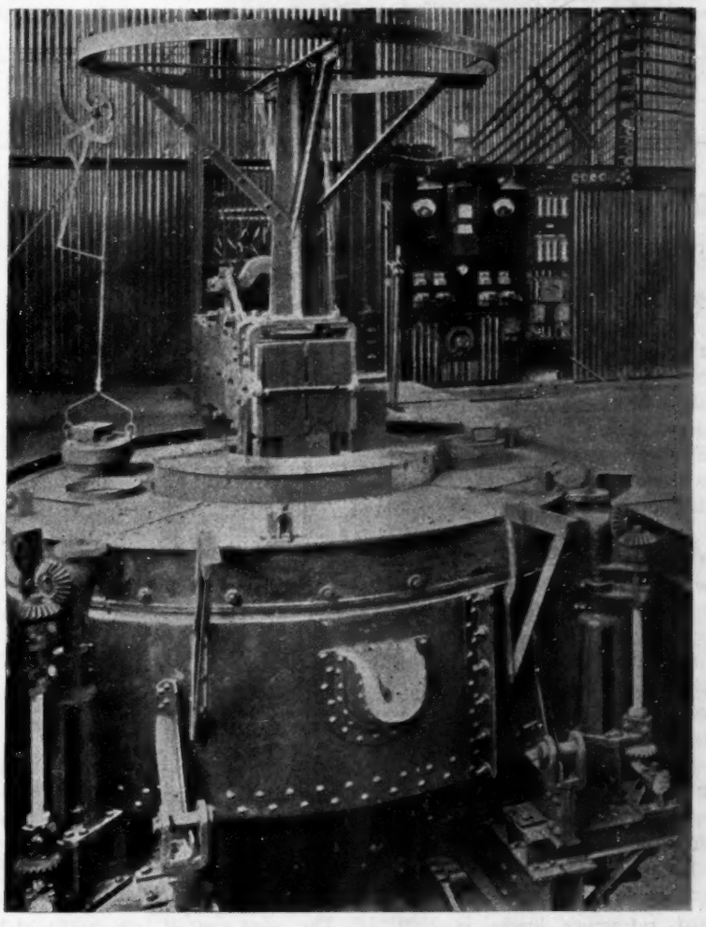


FIG. 1.—FRICK TYPE 1 FURNACE FOR COLD MATERIAL.

[1]Abstract from Bulletin No. 3, Department of Mines, Canada, on "Recent Advances in the Construction of Electric Furnaces," by Dr. Eugene Haanel.

parts of the furnace body, the casing is made in at least two parts, electrically insulated from each other. The casing is lined with insulating bricks, within which the ring-shaped crucible is contained. As material for the crucible best magnesite is used. This is rammed around an iron mold of the shape of the melting channel.

(4) A cover in one piece, the different constructions of which are discussed below in connection with the different types of furnaces. The use of one outer and one inner cast iron or cast steel ring, between which an arched circular roof of refractory bricks is held, is common. These rings are also divided into several electrically insulated parts.

(5) A ventilating fan for cooling the primary coils and the center part of the core. The fan has in some cases been placed on the beam construction, so as not to cut off the air during tilting. It has, however, been found of no inconvenience to shut off the air even for a couple of hours, if the main current is broken, and as it is advisable to have a spare fan, they are now placed in some distance from the furnace. The power consumption of the fan amounts to 0.25 to 0.5 per cent of the total energy consumed by the furnace. In case the air has to be filtered, these figures may be more than doubled. A filtration has, however, been found superfluous even in the center of Sheffield steel works.

Three different types of furnace have been devised to suit different purposes:

Type 1: With a rotating cover, for melting of cold material. Figs. 1 and 2. The cover rests at four points on wheels, which may be turned round by the aid of shafting, driven by an electric motor. Two or three openings are provided, through which the materials are charged. Cast iron plates on the top of the cover, resting on the outside and inside ring, protect the brickwork and add to the convenience of the working. The air is prevented from entering the furnace between cover and crucible by sand grooves underneath both the outer and inner supporting ring. This construction offers the following advantages:

(1) Every part of the crucible is perfectly free to inspection.

(2) By the use of only a few openings the heat radiation losses and power consumption are considerably reduced.

(3) By turning the cover, additions of lime, charcoal, deoxidizers may be evenly and quickly distributed over the bath. In the same way the slag can easily be skimmed off the bath and removed through the tap hole.

Type 2: With a fixed cover, provided with a sufficient number of openings, to get access to nearly all parts of the crucible. This type may be preferable in cases where the cost of erection counts more than a saving in power consumption on account of low power cost, or for very big furnaces, above 15 tons, in which a turning cover would prove too heavy and cumberstone.

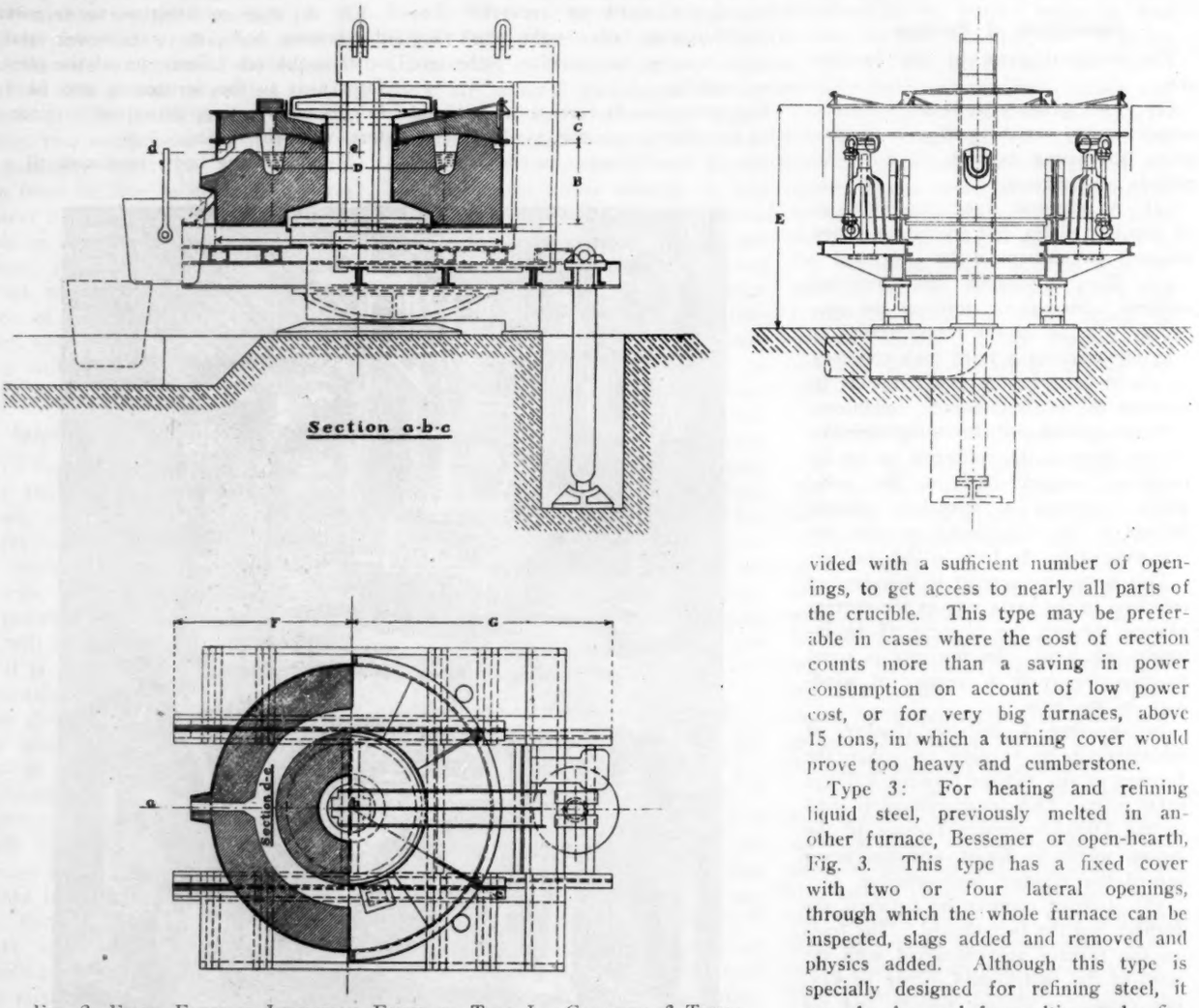



FIG. 2—FRICK ELECTRIC INDUCTION FURNACE, TYPE I. CAPACITY, 3 TONS; POWER CONSUMPTION, 250 KILOWATTS.

Type 3: For heating and refining liquid steel, previously melted in another furnace, Bessemer or open-hearth, Fig. 3. This type has a fixed cover with two or four lateral openings, through which the whole furnace can be inspected, slags added and removed and physics added. Although this type is specially designed for refining steel, it can also be used for melting and refining of cold material, in which case a charging machine should be used to bring in the charge quickly and to prevent too great heat losses through the furnace doors. This type resembles as much as possible an open-hearth furnace. It has not yet been tested in practical work, but judging from the very satisfactory results obtained in the Roechling - Rodenhauser furnace, and published in the *Journal of the Iron and Steel Institute*, 1909, Vol. I, there is little doubt that it will become of most

valuable assistance in the electrical refining of steel. The main advantages are:

(1) A greater surface of the bath, facilitating the reaction between slag and steel.

(2) The heat generated uniformly in the whole bath.

(3) No heavy circulation of the steel for heat transmission, but only a gentle rotation, sufficient to insure regularity

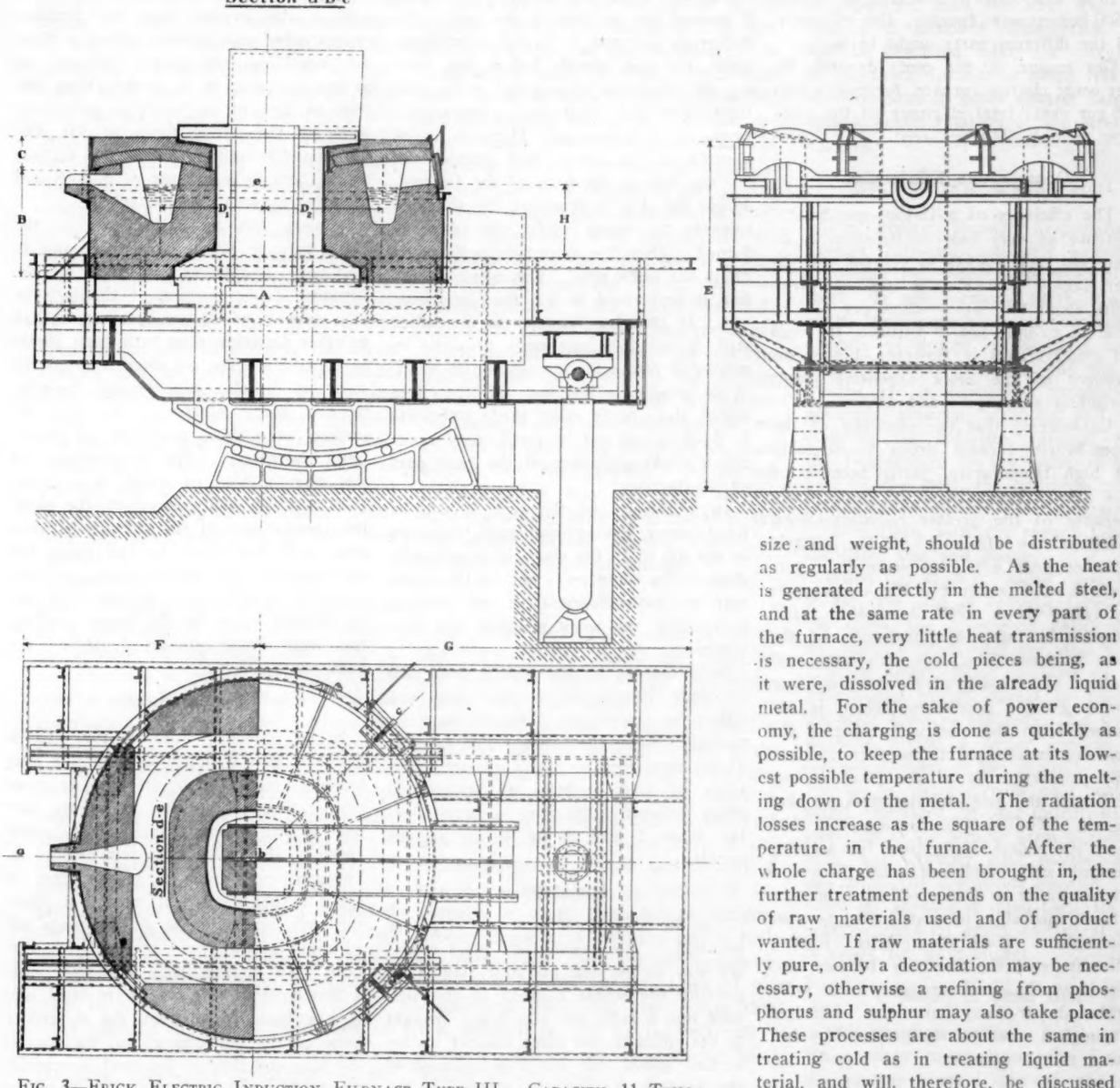



FIG. 3—FRICK ELECTRIC INDUCTION FURNACE TYPE III. CAPACITY, 11 TONS; POWER CONSUMPTION, 750 KILOWATTS.

of product, but not cutting the lining, which with a little attention can be made to stand for several weeks.

The furnace has always to be started with the aid of a cold steel ring. In small furnaces a ring of steel wires has been used. For larger furnaces cast steel rings are more convenient. On turning on the current the ring is heated, and the temperature of the crucible is slowly and steadily raised. The regulation of the current is effected either by varying the number of turns in the primary coils, by influencing the exciting field of the dynamo, or by affecting the speed of the engine. The second method is the most common.

When the ring reaches a temperature of about 1,400 degrees Cent. and starts to melt, the furnace lining has become hard. If liquid steel from another furnace is available, it may now be poured into the furnace, dissolving the ring. But the starting ring may also be heated until it melts. Sometimes the ring will break in one place, before a sufficient quantity of liquid steel has been formed on the bottom of the crucible to insure a closed electric circuit. The crack is then filled with turnings, which in fusing weld the ring together again.

By covering the ring with charcoal, when near the melting point, the scale formed on the ring is reduced, and the melting down of the ring is quickened.

As soon as a liquid bath has been formed, the furnace is ready to start regular work.

The metal to be charged, of suitable size and weight, should be distributed as regularly as possible. As the heat is generated directly in the melted steel, and at the same rate in every part of the furnace, very little heat transmission is necessary, the cold pieces being, as it were, dissolved in the already liquid metal. For the sake of power economy, the charging is done as quickly as possible, to keep the furnace at its lowest possible temperature during the melting down of the metal. The radiation losses increase as the square of the temperature in the furnace. After the whole charge has been brought in, the further treatment depends on the quality of raw materials used and of product wanted. If raw materials are sufficiently pure, only a deoxidation may be necessary, otherwise a refining from phosphorus and sulphur may also take place. These processes are about the same in treating cold as in treating liquid material, and will, therefore, be discussed together.

### Heating of Liquid Steel.

The electric furnace in countries without cheap water power will only in exceptional cases be used to melt cold material for the production of high quality steel, as this melting down can be effected cheaper in an open-hearth furnace.

This may clearly be proved by considering the total efficiency, obtainable out

of coal, if used on one side to provide gas for a Siemens furnace, and on the other side to generate electric power. It will be sufficient to compare the most efficient cases. The most economical results from coal are obtained, if it is gasified in big recovery plants. Such gas can be used either directly in an open-hearth furnace or to drive a gas engine, connected to a dynamo, furnishing current to an electric furnace.

In a well-designed plant of a 15-ton, 2,500-horsepower furnace, the efficiency of the different parts ought to be:

Gas engine, 30 per cent; dynamo, 91 per cent; electric furnace, for cold scrap, 82 per cent; total efficiency of the electric melting, 22.4 per cent.

### Comparative Efficiencies.

The efficiency of a 15-ton open-hearth furnace of very best construction is 25 per cent, but reaches in general only 20 per cent. The electric melting gives thus about the same output per ton of coal as an open-hearth furnace; the cost of electric steel is, however, higher on account of the more expensive plant, including gas engine and dynamo.

Considering that the efficiency of the open-hearth furnace drops considerably at high temperature, partly because of the slower transmission of heat, partly because of the greater radiation-losses, whereas the efficiency of the electric furnace does not drop more than perhaps 3 or 4 per cent if the temperature is raised from 1,500 degrees to 1,650 degrees, so must a combination of the two furnaces give very satisfactory results. On account of the three or four times greater production which is obtained from the electric furnace if the melting is effected in another furnace, the primary costs of the plant do not influence the price of the steel so very much. The electric furnace will thus find its widest application for treating melted steel, delivered either from a Bessemer or a Siemens-Martin furnace. It will probably, in most cases, be convenient to erect the electric furnace distant from the auxiliary furnace, and to have the steel brought in a ladle, although it may also be delivered through a runner directly from one furnace to the other.

### Slagging.

If a ladle is used, its content is tilted into a short channel, provided with arrangements to retain the slag and with a short vertical runner at the end, directing the steel towards the bottom of the crucible.

Immediately after a complete ring has been formed, the switches are closed and the excitation of the dynamo increased as quickly as possible, so full power may be reached before the ladle is empty, which means a certain advantage over arc furnaces. The treatment of the steel depends on the degree of refining desired.

Before entering on the topic of refining, the different ways of slagging may have to be mentioned. In the treatment of pure raw materials very little slag is necessary—only sufficient lime having been added to neutralize the silicon from the metal. This slag is poured out in tapping the steel. In a furnace of type 1, having a rotating cover, the slag, shortly before and during the operation of tapping, is brought forward to the spout most conveniently by means of a skimmer. The man places himself on the cover, and starting on the one side at the back of the furnace, forces the slag in front of the skimmer towards the spout whilst the cover is turned. Then the other side is skimmed off in the same way. The whole operation is performed in less than one minute. If the slag happens to be rather stiff, it might be necessary to assist in getting it round the corner at the spout. With proper adjustment of the lime added, the slag is easily made sufficiently fluid to run out by itself, only needing a slight assistance at the back part of the furnace.

In a furnace of the type 2, with a fixed cover having numerous openings in the top of it, the slagging is generally done in the same way; but, as the skimmer has to be taken from one opening to another, the work is much less convenient.

In a furnace of the type 3, with two or four lateral doors, the slag can either be drawn out through these or tapped through the spout. The refining of the steel requires much greater quantities of slag, making its withdrawal more difficult. On this account, only the types 1 and 3 are to be recommended.

### Refining.

For the refining, at least two slags are required. The easiest and most effective way to get out the first slag is by pouring the whole content of the furnace into a ladle, the slag being brought to the spout in the same manner as described above; the metal is returned to the furnace through the bottom of the ladle. The slagging in the Frick furnace is thus as convenient as in any other electric furnace. In arc furnaces the electrodes interfere with the work. It has repeatedly been stated that slagging in an ordinary transformer furnace is impossible. Such statements are evidently based on experience with the original Kjellin furnace, in which a deep and narrow channel is used, a number of sectional covers have to be lifted off to get access to the bath, and the slag is cooled through the considerable radiation loss taking place on account of the construction of the covers. In the Frick furnace the slag is hot by the good heat insulation obtained with the cover in one piece. Slags, which are sufficiently basic to prevent a cutting of the lining, run out in tapping with very little assistance. Not the slightest difficulty has been experienced in this direction.

It is also evident that this furnace cannot offer any greater difficulty than the Roechling-Rodenhauser furnace, as to the convenience of withdrawing the slag, as the crucible is quite sufficiently wide for the raking tools, or 300, 350, 420 and 500 millimeters at the surface of the bath in a furnace of 3, 5, 8 and 15 tons capacity, respectively.

Refining can be carried on in the Frick furnace in the same way and to the same degree as in other electric furnaces. The surface of the bath is, as a rule, 10 to 20 per cent larger than in other furnaces, thus furnishing plenty of contact for the reactions between the steel and the slag, and through the gentle and steady rotation of the steel, described later, these reactions are essentially furthered. The temperature of the slag is also of great importance. For a given temperature of the steel, the temperature at the contact between steel and slag must be the same for all furnaces. In arc furnaces the temperature of the slag increases and has its highest value at the upper surface, the heat being developed above the bath.

### Temperatures.

In an induction furnace, the slag is less hot at the upper surface, all heat being generated in the steel. The mean temperature of the slag in an arc furnace is thus higher than in an induction furnace; the fall of the temperature is, however, not great if proper care is taken to get good heat insulation above the bath, which is one of the main advantages of the cover in the Frick furnace. In melting pure materials, only a thin layer of slag covers the steel, and it has been found that the difference between the temperature on the top of the slag and that of the steel is scarcely perceptible with a Wanner or Fery pyrometer.

In refining, rather large quantities of slag are required, resulting in a greater difference of temperature. Should the slag on the top not become fluid, and thus not participate in the reaction, this can easily be remedied by stirring the slag, which in the Frick furnace can be much more easily done than in an arc furnace, where the electrodes interfere, and may easily be damaged, and

where the melter is exposed to electric shocks. The refining results in induction furnaces are quite equal to those in arc furnaces.

### Dephosphorization.

According to the degree to which the phosphorus has to be reduced, one or two slags have to be used. The dephosphorization is accomplished in the same way as in the open-hearth furnace, by the combined action of lime and oxide of iron. The high temperature of the electric furnace facilitates the elimination of phosphorus. As all furnaces until now have exclusively been used for the melting of pure stock, very little actual results can be given. In one instance, however, the phosphorus was reduced to 0.004 per cent. The experience with other electric furnaces of similar type shows that similar results may be obtained in quite a secure and regular way. When the dephosphorization is completed, all the slag has to be removed. The quickest and most radical way is to empty the whole furnace and to return the steel alone. This method is more suitable for the Frick furnace than for arc furnaces, less time being lost on the ground mentioned above. Care has to be taken to prevent any considerable loss of heat by radiation during this procedure. Runners and ladle ought to be kept well covered.

Desulphurization can also be carried much further in an electric furnace than in a Bessemer or open-hearth furnace, on account of the ease with which a non-oxidizing or neutral atmosphere, and thus a slag free from oxides, can be maintained. Before the sulphur is eliminated, it is necessary to reduce, as much as possible, the ferrous oxides absorbed by the steel during the oxidation process. This is done cheaply with charcoal or retort carbon dust, spread on the bath. To prevent the carbon from igniting in the air, it should be protected with the lime, which is needed for the formation of the finishing slag. To make this slag fluid, a certain amount of sand, fluorspar, chlorcalcium, must be added.

As soon as the oxides have been reduced, the sulphur can be absorbed by the slag, combining according to the formula: $CaO + C + FeS = CaS + Fe + CO$. The resulting calcium-sulphide being insoluble in the steel, this is insured against any re-absorption of sulphur, as long as the bath is protected by a neutral atmosphere, preventing the formation of FeO.

### The Carbon-Content of Steel.

When high-class steel is produced by melting pure raw materials or the electric furnace is used to take the place of the crucible process, the proper carbon-content is obtained by the suitable mixing of pig and scrap. A certain oxidation of the carbon takes place mainly through the scale and rust on the raw materials. After the bath is well melted, a sample is taken and, if the carbon is too high, scale or pure ore is added. If the carbon is too low, carburizers as spiegel or retort carbon are used. In some cases, liquid steel of about the same carbon-content as the ultimate product is delivered into the electric furnace, as for instance, if in combination with an open-hearth furnace, in which the steel has been melted and dephosphorized to a sufficient degree without eliminating the carbon. If delivered from a Bessemer plant, or if the phosphorus is wanted as low as 0.01 per cent or less, the liquid steel is preferably delivered low in carbon; the recarburization is then effected after the dephosphorization and along with the desulphurization. To make the bath absorb the carbon quickly, the carburizer should be sufficiently heavy to dip into the steel so as to offer a big surface of attack. Retort carbon or carbon briquettes, made heavy through an admixture of pure steel turnings, are convenient for the purpose. A further recarburization may be made in the ladle by adding bags of charcoal if the last sample before tapping shows an insufficient content of carbon.

### Deoxidation.

As on account of the construction of the Frick furnace only very little air can enter the crucible, and the atmosphere over the bath is reducing or neutral, the amount of oxygen passing from the air into the steel is very small. However, even in melting high-class steel from pure raw materials, there is a certain oxidation caused by the rust and scale from scrap and pig. A deoxidation has to follow, and is carried out in the usual way by adding in the furnace, a short time before tapping, proper amounts of reducing alloys, such as ferro-silicon or silicon-manganese-aluminum. From the quantities of the deoxidizers used, one can gather that the amount of Fe to be reduced is about 0.2 to 0.6 per cent of the total weight of the steel.

If the steel has been purified from phosphorus, either in the electric furnace itself or by previous treatment in a Siemens-Martin or Bessemer furnace, it contains considerable quantities of oxides. These are, as mentioned above, to a great extent removed by retort carbon or charcoal, and, if a desulphurization of the metal is wanted, the deoxidation is a condition for, and goes hand in hand with, the purification from sulphur. Therefore, if the sulphur is removed to traces, the greatest part of the oxides will have left the steel and only a small quantity of reducing alloys have to be added for further deoxidation.

If, however, the steel is kept in a strong circulation and movement, as is the case in most of the electric furnaces, the finest particles of the slag, which are distributed in the metal like the constituents of an emulsion, cannot be separated from the steel, thus preventing a complete deoxidation. As will be discussed later, the circulation in the Frick furnace is much less pronounced than in other electric furnaces, only a gentle rotation of the steel taking place.

### Additions For Special Steel.

The electric furnaces, especially induction furnaces, are well suited for producing high speed and other alloyed steel. In arc furnaces, there is a difficulty and uncertainty in obtaining a product of proper composition, as the difference in temperature, and the heat of the arc in particular, influence the reactions between additions and steel. But for the induction furnace, where the temperature is the same in every part of the steel, the additions can be calculated in exactly the same way as in a crucible, with due regard taken to the basic slag and lining.

When the steel is "killed" and ready to tap, the slag is brought forward to the spout, the current is switched off, the furnace tilted, and the steel poured into the ladle. Final additions of manganese and silicon should be made to the steel when in the ladle, this way of working giving a better control over the composition of the product. If the furnace is charged with cold material, about one-third to one-fourth of the steel has to be left to form a sufficient bath, but working with molten metal, the crucible is completely emptied. This done, the furnace is tilted back, the current switched on again, and the furnace is ready for next charge.

### Rotation of Steel Bath.

The magnetic leakage fields around the primary coils cutting the paths of the electric current through the steel, produce a movement in the direction of the arrows, Fig. 4, and a force pressing the steel towards the outer wall, causing the surface to take an inclined position. This rotation has thus a tendency to carry the slag—floating on the steel—towards the inner wall, and can, especially in big furnaces, if it becomes too rapid, cut the lining by mechanical friction.

As the rotation is caused by the electro-magnetic forces, it can only be reg-

ulated by suitable dispositions of the coils. In this respect the arrangement of two flat coils above and below the crucible offers considerable advantage over the arrangement of one high coil between the inner wall of the crucible and the iron core, as proved in a competition between the two systems at Krupp's works.

### Effect of Slag on Lining.

The slag, being forced from the outer wall, hardly affects this at all; its cutting effect is concentrated on the inner wall.

At first this appeared a rather serious drawback, the life of the lining being very much reduced by the unequal cutting of the two walls. But in fact this rotation of the steel is of great importance in protecting the inner wall from cutting, if only some little precaution is taken to feed in basic materials, preferably lime and magnesite, before materials containing silicon or phosphorus

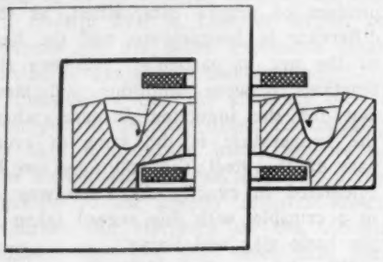


FIG. 4.

are introduced. Through the rotation the lime is pressed against the inner wall, and prevents the particles of silica and phosphoric acid, through the rotation brought up to the surface along the outer wall, attacking the inner wall. The acid particles become, so to say, satisfied by the basic materials before reaching the inner wall, which by a little attention may be kept practically unattacked. This method can be regarded as an automatic repairing of the lining. In some cases it might be regarded as less desirable to use a very basic and rather stiff slag; the inner wall may then be protected against cutting by an artificial cooling of the slag line. It is evident that the heat losses, involved in such cooling, are very much less than if the outer wall were subjected to the cutting effect of the slag.

### Uniformity of Product.

Fear has been expressed that the additions made in the comparatively long and narrow channel of the induction furnace, would not be equally distributed through the steel, but analyses from the Frick furnace prove that the metal is perfectly uniform in every part of the furnace. But even with the same analyses, the ingots from one charge or the bars from one ingot can differ in quality, and objections have been raised against the electric furnace as not producing a steel of equal and reliable composition. This might sometimes happen in furnaces where there is a difference in temperature, or where the movement of the bath is so strong as to not permit particles of slag, mechanically mixed with the steel, to separate. In the Frick furnace, with equal heat in every part and only a gentle rotation, there is less liability of this occurring.

### Heat Dissipation.

The heat, produced through the electrical and magnetical losses in the iron core and the coils, as well as the heat radiation from the outer surface of the inner wall, must in some way or other be carried away, to prevent the insulation in the coils from becoming damaged, and also to keep down the losses in the coils, the electrical resistance in which increases with the temperature. The coils are constructed to stand a temperature of up to 120 degrees Cent., but do not reach more than about 60 degrees to 70 degrees Cent. The cooling is effected by the means of air delivered from an electrically-driven fan. The amount of air required is calculated on the basis of 1 cubic meter air per 1 second to deal with 1 kilowatt of loss at 1 degree Cent. increase of temperature. The power required by the fan only amounts to 0.25 to 0.5 per cent of the total energy of the furnace, unless a filtering of the air is required. In very big furnaces, over 2,000-horsepower, the pressure which the fan will have to overcome to force a sufficient quantity of air through the narrow space between furnace body and iron core, may require too much power, so that a cheaper and more effective cooling would be arrived at by use of circulating oil as in ordinary transformers.

One of the main critiques against the Frick furnace suggests the danger to which the lower coil is exposed in case of a breakdown of the crucible. This danger is totally avoided by the arrangement of channels in the brickwork, which deflect any liquid steel from the center towards openings in the bottom of the furnace body at such places, so that no harm either to the coils or to other metallic parts of the furnace can be done. The precautions have been so satisfactory that, after their introduction, not the slightest damage has had to be recorded, although breakdowns have been rather numerous during the experiments with the lining.

### Steadiness of Power.

One of the advantages of the Frick furnace against the arc furnaces is the absolute steadiness of the power demand. In treating liquid steel, the full power can be maintained throughout the process without any attention or regulation; in melting down cold scrap, the excitation has to be increased with the increase of the bath. This steadiness of the load is of great value to the power plant, and makes the costs of upkeep and repair of the engine a great deal lower than in the case of arc furnaces.

The economy of the electric furnace is improved by increase in size similar to most technical apparatus. It is, therefore, of importance not to be too much limited as to size and power. The Frick furnace has already been built up to a capacity of 10 tons and a power consumption of 1,000 horsepower. The excellent results of this furnace show that no extra difficulties arise from the larger size. A 15-ton furnace, to consume 2,500-horsepower, has been designed for the treatment of liquid steel. The dimensions and price of such a furnace do not indicate that a limit has been reached. By combining two furnaces, sizes of up to 50 tons and 4,000-horsepower may be obtained.

Three furnaces have been built, all meant to replace crucible plants, and up to now only cold material has been charged.

### Some Operating Data.

One furnace of 4,000 pounds capacity and 250-horsepower, erected at Messrs. John Brown & Co., Ltd., Sheffield, for experimental purposes, has given satisfactory results with regard to the melting, and the steel has proved to be equal to crucible steel. At Messrs. William Jessop & Sons, Ltd., Sheffield, a furnace of 6,600 pounds and 600-horsepower is built, which has not yet come into regular working.

The most decisive results have been obtained with a furnace of a capacity of 11 tons and 1,000-horsepower, installed at the works of Messrs. Fried. Krupp, at Essen. The furnace has been in regular operation since January, this year, and proved so successful that the firm has taken over the exclusive patent rights for Germany. Results from one melting period are given below:

Duration of melting period, June 2 to July 14, 42 days; number of charges, 134; average time for charge, 6½ hours; metal charged, 883 tons; good ingots produced, 850 tons; loss and waste, 33 tons = 3.73 per cent; kilowatt hour per ton charge, heating of furnace included, 638; kilowatt hour per ton charge, heating of furnace excluded, 623; kilowatt hour per ton ingot, heating of furnace excluded, 647; kilowatt hour per ton ingot, heating of furnace included, 663.

# NEW FURNACE B—DETROIT IRON & STEEL CO.

## Particulars of the Recently Completed Extensions of the Plant Which Have Doubled Its Capacity

Recognizing the significance of the rapid growth of the city of Detroit as affecting local iron consumption, M. A. Hanna & Co., early in the year 1909, began preparations to increase the capacity of the Detroit Iron & Steel Co.'s plant on Zug island by the addition of a second blast furnace. In spite of the depressed condition of the iron market during the entire period of construction, building operations were pushed steadily forward, and the furnace was blown in immediately upon completion on July 21, 1910.

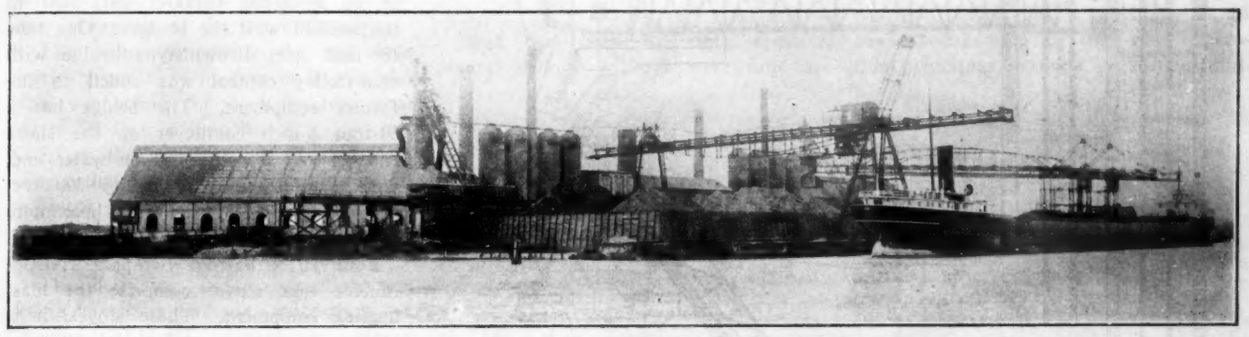


FIG. 1—VIEW OF PLANT FROM RIVER. DETROIT IRON & STEEL CO.

### Arrangement of Plant.

The photograph, Fig. 1, and the general plan, Fig. 2, show the location of the new, or *B*, furnace with respect to the old or *A* stack, and the Detroit and Rouge rivers. As may be seen, it stands east of the old stack with the River Rouge on the north. The center lines of stack, stoves, boilers, engines, etc., are prolongations of the lines of the corresponding installations of *A* furnace. The axis of the new cast house, however, is placed at an angle of 45 degrees with the general alignment in order to simplify the track layout.

The furnace, which was built for a nominal daily output of 300 tons, is 80 feet high, with a bosh diameter of 18 feet 6 inches. The hearth jacket is built up of cast iron water-cooled sections 4 inches thick. The inside diameter of the jacket is 18 feet 6 inches at the top and 19 feet 6 inches at the bottom, and its height is 9 feet. The sections are held together by shrink links, and the assembled jacket is reinforced by three 1¼ x 12-inch bands. The take-up on each joint of these bands is made with three 2½-inch rods.

There are six cast iron columns, resting upon a continuous base plate and supporting the shell, which is built up entirely of ¾-inch plate.

The bosh walls are cooled by means of seven rows of copper plates, in addition to the tuyere coolers, and are reinforced by seven bosh bands, supported from the mantle and bolted together in their exact location before brick work is started. The brick work above the mantle is cooled by means of eight rows of cast iron plates with 18 plates in each row. Cooling water for bosh plates and hearth is drawn from six manifolds attached to a 10-inch pres-

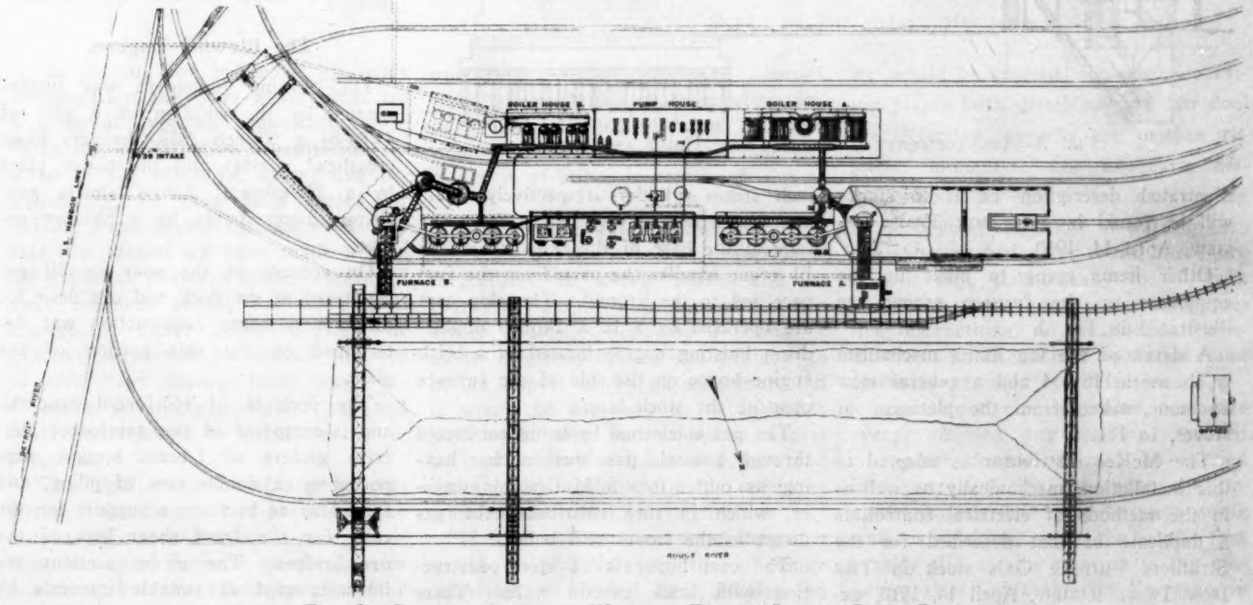



FIG. 2.—GENERAL PLAN OF WORKS. DETROIT IRON & STEEL CO.

sure pipe. A smaller pressure pipe located at the mantle feeds the cast iron cooling plates, higher in the furnace.

Twelve McKee tuyere stocks are included in the furnace equipment. These stocks are notable for their tightness and have repeatedly demonstrated their worth on account of low cost and time saving in renewal of their parts. An

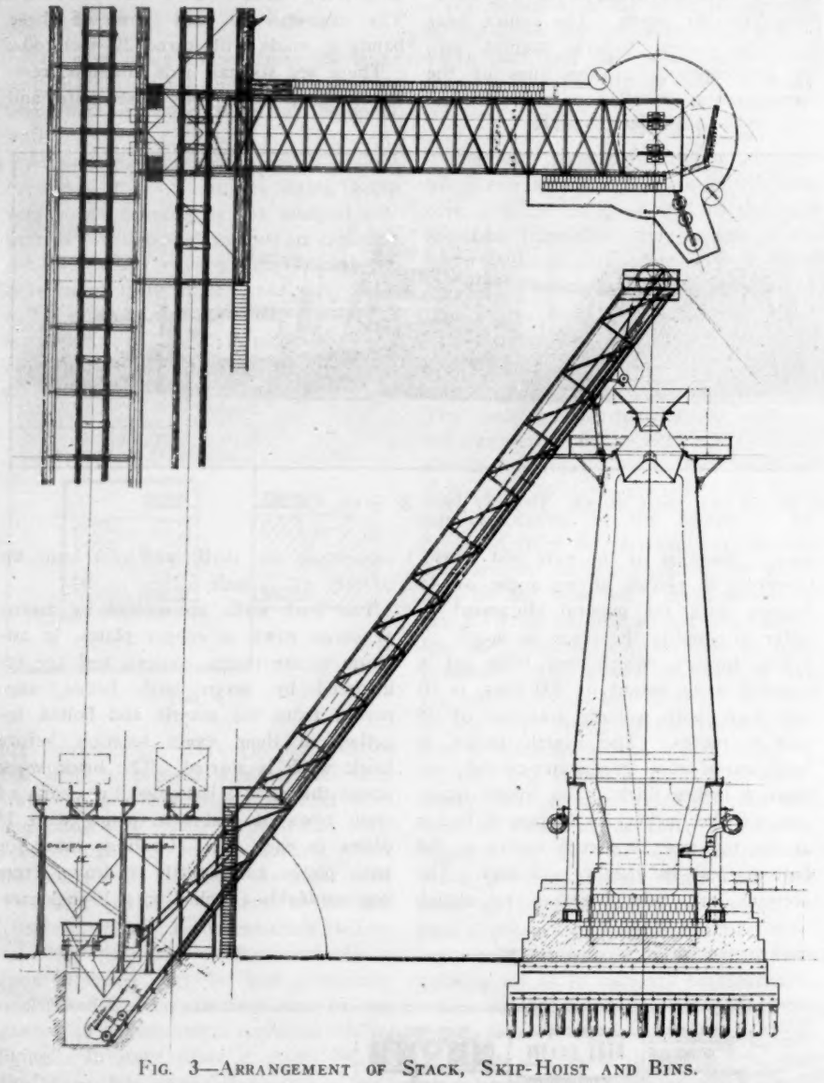


FIG. 3—ARRANGEMENT OF STACK, SKIP-HOIST AND BINS.

illustrated description of these stocks will be found in THE IRON TRADE REVIEW, April 14, 1910.

Other items going to make up the equipment on the furnace proper are illustrated in Fig. 3.

A detail of the top filling mechanism is shown in Fig. 4 and a general view of same, taken from the platform of stoves, in Fig. 5.

The McKee distributor as adapted to this installation, mechanically as well as in the methods of electrical control, is a duplicate of that described for the Struthers Furnace Co.'s stack in THE IRON TRADE REVIEW, April 14, 1910, except that the equipment is designed to carry four skips to six points of distribution instead of six skips to six points in the Struthers distributor.

The stock is delivered to the distributor from the stock house by means of a double track skip bridge, which is pin connected to the furnace platform. The large and small bells are controlled through bell beams by 14-inch and 10-inch steam cylinders respectively, operated through four-way valves from the cage at the base of the skip bridge. A jib crane handles the parts from the furnace top to the ground. The skip cars are operated by a 12 x 14-inch double-drum hoisting engine located in a brick engine house on the side of the furnace opposite the stock bins.

The gas is cleaned by being conducted through a single pass dust catcher having its outlet into a Mullen gas washer, which in turn distributes the gas direct to the stoves and boilers.

The cast house is of steel construction with brick curtain walls. There are 10 20-foot bays of 70-foot span. The house is equipped with a Brown pig breaker served by a five-ton Brown crane.

The steel stock bins illustrated in Fig. 6 are of a simple and inexpensive type. The ore and stone bins deliver their stock into the 10-ton McKee type scale car shown, while the coke bin discharges direct into the two skip cars from either side of the bridge.

### Ore Handling Plant.

The ore bins are filled either directly from the stock pile by the ore bridges or by a 30-ton transfer car used in conjunction with the bridges. One new 188-foot span Brown type bridge with man-trolley control was added to the former equipment. The bridge has a 60-foot 6-inch cantilever on the shore end, 74-foot 2-inch apron on water end, with a total travel of trolley 300 feet and is designed to handle a maximum load of 11 tons.

Four 20 x 85-foot two-pass Nelson-McKee type stoves comprise the blast heating equipment. These stoves, it is said, have demonstrated their ability to hold high heats for long periods. The boiler plant comprises five 400-horsepower Wickes boilers connected to an independent self-supporting stack.

Service water is supplied by two Allis-Chalmers 8-inch double-suction, single-stage centrifugal pumps, each direct driven by a 120-horsepower non-condensing Terry steam turbine designed to operate on a range of steam pressure between 125 and 50 pounds and deliver through this range 3,000,000 gallons against a total net head of 132 feet. The old standpipe used in connection with *A* furnace was raised 25 feet to maintain the head necessary on the new furnace.

### The Blowing Engines.

The blowing equipment was supplemented by the addition of a pair of 44-84-84 x 60-inch Allis-Chalmers long-crosshead engines and the power plant by a 250-kilowatt Allis-Chalmers generator, direct driven by a Skinner engine.

On account of the poor subsoil encountered at the dock and ore floor location very heavy construction was determined on for this portion of the plant.

The dock is of reinforced concrete, and is composed of two reinforced concrete girders of I-beam section, supported on a double row of piling, and spaced so as to form a support for the rails for the front shear legs of the ore bridges. The girder sections are interconnected at suitable intervals by reinforced concrete girders and by a

6-inch reinforced concrete slab forming a floor between the upper portion of the girders. This slab extends as a cantilever at the front of the dock and is supported by reinforced concrete knee braces attached to the front girder. The ore floor is a reinforced concrete slab supported on piling. Piles were spaced on 4-foot centers over the entire floor, the reinforcing of the slab and spacing of piling being proportioned for an ultimate load of 6,800 pounds per square foot. The ore floor is tied into a reinforced concrete girder at the rear, which girder carries the rail for the rear shear leg of the ore bridges.

The piling supporting the ore floor varies from 30 to 45 feet in length, and that supporting the dock proper, from 40 to 55 feet in length.

After the construction of the plant was completed, it was decided to install a single strand Uebling pig machine for the purpose of giving the plant a range of product to include basic iron.

The designing and construction was carried out under the supervision of Arthur G. McKee, consulting engineer for M. A. Hanna & Co.

## An Efficiency Department.

"Competent counsel cannot come from one man. All around us are the laws of the universe, here and there partly read and codified, but with many great and partially traversed regions. Counsel, direct or indirect, is wanted from each man who knows the most, so that we may not be floundering along on last week's, last month's, last year's, last decade's, or last century's knowledge, but use special knowledge, today the possession of the few, but destined to become world practice.

* * * * *

"In striving for industrial efficiency of operation, we have made pleas for a different type of organization—the defensive, constructive organization instead of the offensive, destructive organization; we have made a plea for definite high ideals instead of indefinite low ideals; we have made a plea for supernal common sense instead of near common sense; but no radical change in either point of view or practice is needed to extend the use of competent counsel from legal, accounting, purchasing, engineering, and other departments to an efficiency department.

"The legal counselor of a great corporation is often a vice-president, the purchasing agent is often a vice president, the chief engineer is often a vice president, but the efficiency counselor is often a subordinate far down the line attached more by accident than by design to some special department.

"The legal counselor extends his warning, helping, guiding hand to every other department. 'You may not do this because it is illegal; there is reasonable doubt as to another plan.' He does not pass on finances, records, engineering, or efficiency questions. The financial counselor stands against irregular expenditures however much needed; the purchasing agent buys what is requisitioned in the best and most advantageous market.

* * * * *

"But the railroads and industrial plants almost without exception are operating without efficiency counsel, efficiency problems of momentous import being decided off-hand, by intuition. Is it to be concluded that efficiency is of minor importance?

* * * * *

"The legal counselor does not, cannot know all the laws and proper legal formalities in every State, and he therefore employs junior and often senior counsel. Similarly a counselor as to efficiency would not pretend to be an expert as to all efficiency, but it would be his duty to be in touch both as to men and scientific reports with all that was latest and best and make it all available for his employer whether individual or corporation.

"If the corporation were large it would be the duty of the efficiency counselor to install and develop an efficiency organization, extending top to bottom even as the accounting department extends from top to bottom. Each minor official would have his own staff of efficiency experts working directly for him, but also even as the time-keeper to a superintendent is subject to the comptroller, so also would each efficiency expert be subject to the direction of the efficiency officer above him.

"The chief efficiency counselor would initially advise as to type of organization; he would ascertain what the ideals were and strive for their realization; he would represent supernal common sense; but it is chiefly as to the standardizing of the other operative principles that his organizing ability would be applied. In most operating plants both discipline and fair deal are defective, records are neither reliable, immediate nor adequate, dispatching is so elementary as scarcely to be beyond the stage of putting into the shop an order for work, there are few, if any, scientifically made work schedules, there are no standard-practice instructions, no standardized conditions, no standardized operations and efficiency rewards are defective.

"Competent counsel must permeate every efficient organization, and if competent counsel cannot be carried into operation, it is because the organization is defective, because some staff is lacking, and the staff that usually still awaits creation is the efficiency staff."—Harrington Emerson in *The Engineering Magazine*.

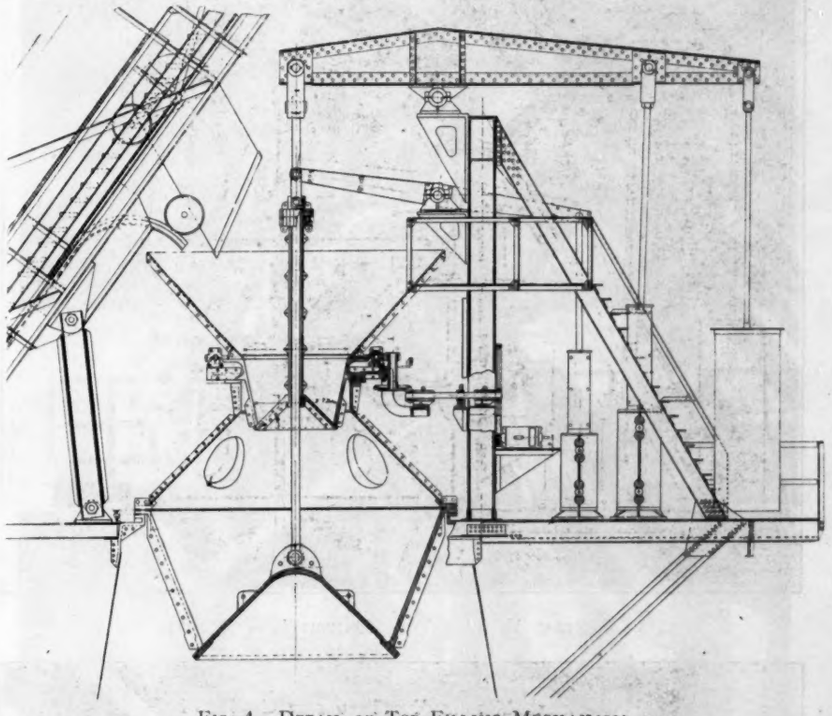


FIG. 4.—DETAIL OF TOP FILLING MECHANISM.

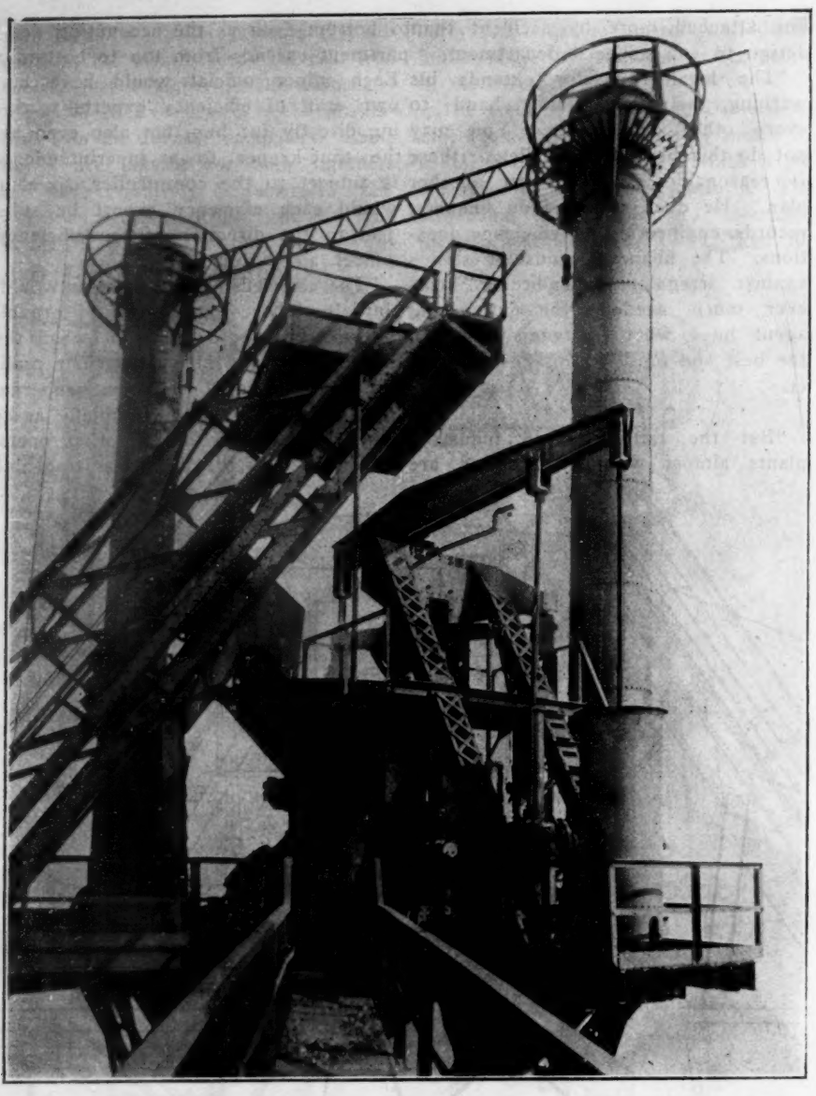


FIG. 5.—GENERAL VIEW OF TOP. DETROIT IRON & STEEL CO.

FIG. 6.—THE STOCK BINS. DETROIT IRON & STEEL CO.

## Control of Heroult Process in United States.

The United States Steel Corporation has taken over exclusive rights for electric making and refining of steel under the Heroult process in the United States. The corporation has been operating two 15-ton Heroult furnaces, one at South Chicago, and the other at Worcester, which have been largely to demonstrate the commercial value of the process. The acquirement of complete control of the process in this country indicates the success of the investigations, and it is planned to be followed by the installation of large capacity plants and the introduction of electric steel making on an important scale in the United States.

## New Publications.

"THE VOLATILE MATTER OF COAL" is the title of the first bulletin to be issued by the new federal bureau of mines. The authors, Horace C. Porter and F. K. Ovitz, conducted their investigations at the Pittsburg station while it was under the technologic branch of the geological survey, the work being a continuation of the fuel investigation begun several years ago at the Louisiana Purchase Exposition, St. Louis. The results obtained at that plant showed that the work of determining the fuel values of the coals and lignites in the United States with a view to increasing efficiency in their utilization would be incomplete if it did not include systematic physical and chemical researches into the processes of combustion. Hence in their later investigations the authors carried on such researches, concentrating attention on those lines of inquiry which promised results of greatest economic importance. This bulletin is therefore a report on an investigation of the volatile matter in several typical coals—its composition and amount at different temperatures of volatilization.

GRITS AND GRINDS.—The Norton Co. and Norton Grinding Co., Worcester, Mass., have issued an anniversary number of their monthly publication bearing the above title and which is a history of the growth of the two concerns, which is almost equivalent to a history of machine grinding. The booklet is replete with portraits and excellent illustrations and is well worth preservation.

CORLISS ENGINE ECONOMY AND FRICTION LOSSES.—A 24-page pamphlet distributed by the Providence Engineering Works, Providence, R. I., gives data regarding simple and compound, condensing and non-condensing engines and records steam consumptions as low as 18.3 pounds per indicated horsepower hour on a non-condensing compound engine, and as low as 12.1 pounds with a compound condensing engine, and friction loads as low as 3.8 per cent. The tests from which the data are drawn were conducted by George H. Barrus, Prof. Jacobus and others as representatives of purchasers.

EXPLOSIBILITY OF COAL DUST.—Bulletin No. 425, by George S. Rice and others, gives in condensed form the reports of various committees and commissions appointed to investigate the cause of explosions in Europe and America, together with the results of investigations and experiments conducted by the United States geological survey and the methods by which they were conducted. 186 6 x 9-inch pages, distributed by bureau of mines, Washington, D. C.

## An Interesting Pumping Engine.

There has recently been completed, in the shops of Allis-Chalmers Co., Milwaukee, one of the most interesting pumping engines ever built. In point of power it practically equals the largest, that built by the same company for the city of Nashville.

The new engine is for the city of Wheeling, W. Va., and is of the vertical triple expansion crank and flywheel type, with steam cylinders 42 inches, 74 inches and 110 inches in diameter and water plungers 33 inches in diameter. The stroke is 72 inches. The designed capacity is 20,000,000 gallons daily against a head of 350 feet. The low-pressure cylinder is the largest cylinder ever used on a pumping engine. The cylinders are all steam jacketed; steam for the high-pressure cylinder jacket is bypassed around the admission valve, while that for the intermediate and low-pressure cylinder jackets is taken from the first and second receivers respectively. The steam from the jackets of the high-pressure and intermediate cylinders is trapped into the second receiver and does useful work in the low-pressure cylinder.

### Details of Design.

Admission valves on the high and intermediate cylinders and the exhaust valve of the high-pressure cylinder are of the Corliss type, while the exhaust of the intermediate, and both admission and exhaust of the low pressure cylinders are of the poppet type. The valves are driven from eccentrics on a lay shaft supported on brackets on the main frame of the engine. The lay shaft drive, not shown in the engraving, is driven by means of drag cranks and connecting rods from each end of the main shaft.

The engine is designed for a working steam pressure of 125 pounds and a vacuum of 27 inches. At the regular speed of 18 1/3 revolutions per minute the piston speed will be 220 feet per minute. Two fly wheels, weighing 90,000 pounds each, are provided. The condenser is of the surface type and is located in a by-pass of the discharge line of the pump with cut-off valves on either side. A free exhaust is provided for use when necessary. The air pump is driven from an arm on the low pressure plunger.

The valve chambers are 78 inches in diameter, which are the largest ever built, and as well as the pressure chambers, are of cast steel. The valve decks are also of steel and the 186 valves in each chamber are placed directly in the deck without the use of cages. The valves are of a special weighted type designed to obviate the need of springs.

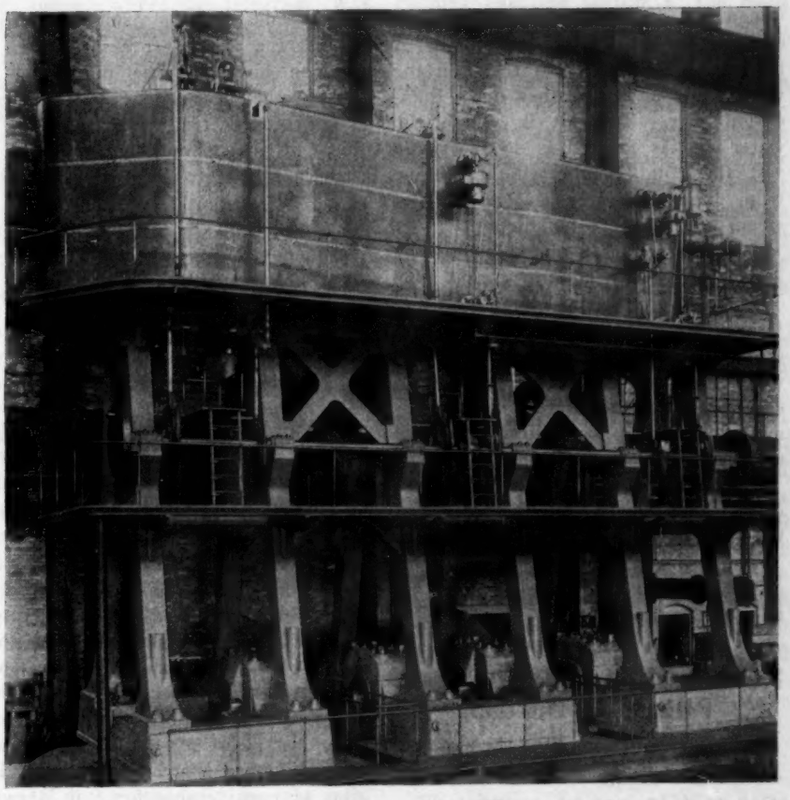


FIG. 1—STEAM END OF VERTICAL TRIPLE-EXPANSION PUMPING ENGINE FOR WHEELING, W. VA.

The water end of the pumping engine, shown in Fig. 2, is self-con-

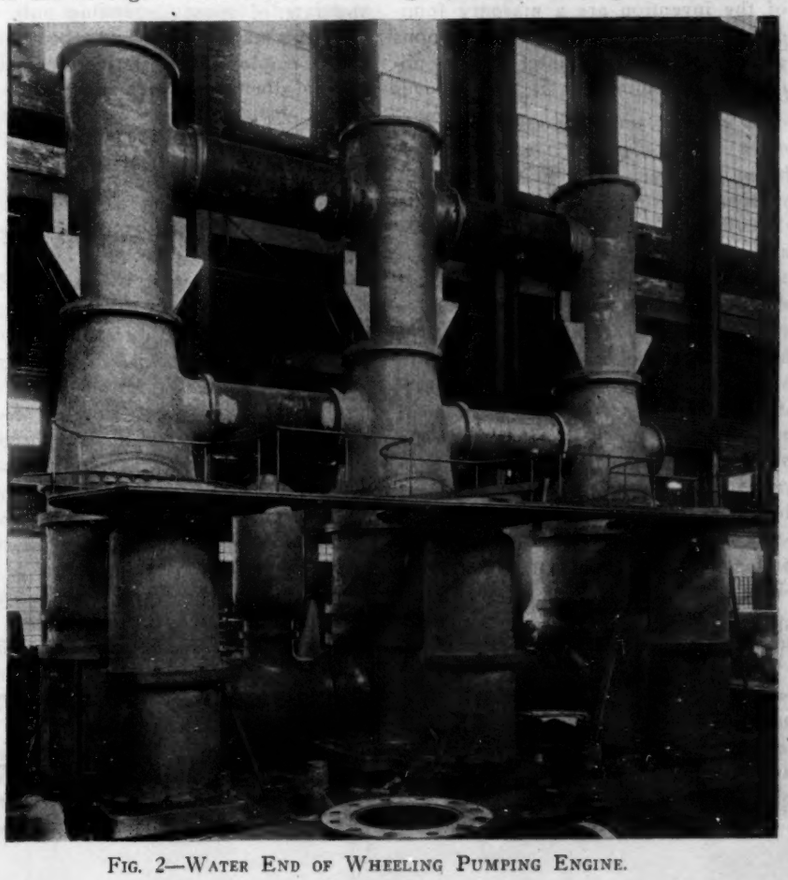


FIG. 2—WATER END OF WHEELING PUMPING ENGINE.

tained and self-supporting. The steam cylinders are supported on double A frames, of which 1 foot rests on the water ends and the other on a foundation pier. The pit in which the water end is located is 46 feet deep and the total height of the engine from base of water end to top of steam end is 84 feet 8 inches.

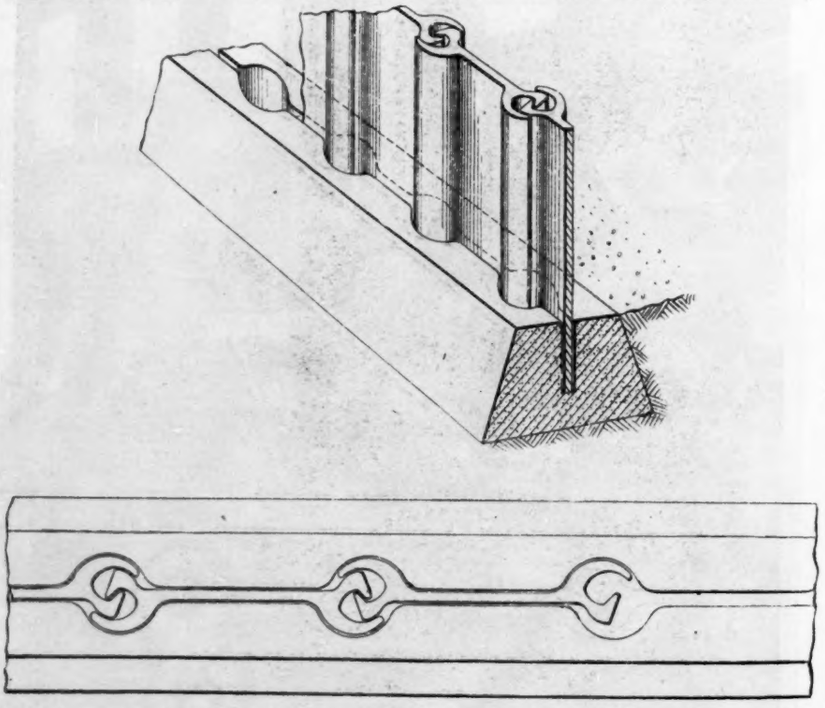
Each piston has a single piston rod which is screw-fitted into a cast steel cross head and secured by a lock-nut. Four distance rods connect the steam cross head with the water cross head, which is also of cast steel. This is connected to the water plunger by means of heavy cast iron pipe sections fitted with adjustable guides.

Galleries are provided at the levels of the valve decks and plunger chambers in the pit as well as those shown above the engine room floor, which give access to the crossheads, eccentrics, valve gear, etc.

## New Method of Using Steel Piling as Barrier.

In order to simplify the use of steel sheet piling for temporary service a new form of temporary structure, especially adapted for protection against floods, has been patented by Thomas C. Clarke, of the steel piling department of the Lackawanna Steel Co. The essential features of the invention are a masonry foundation provided with a continuous groove or slot, and inter-locking piling beams suited to fit the grooves snugly and thus be firmly supported against the greatest pressure when in position but with the piling set so loosely that it may be put in place and removed readily by hand. To this end piles should be employed of such length as to form a wall higher than the highest possible crest of the flood and the grooves are made deep enough to give a firm support to the piles used. Figs. 1 and 2 show a perspective view partially in vertical section and a plan illustrating the construction, showing the foundation, or base, adapted to Lackawanna piling, though it may also be employed with any of the standard forms.

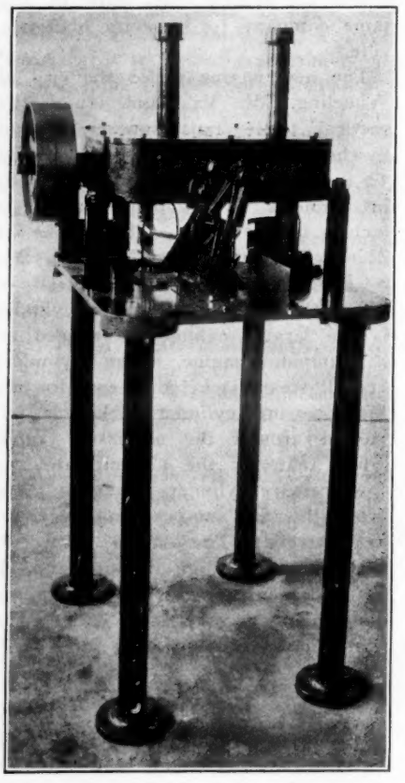
The use of an essentially temporary structure represents an adaptation of steel piling in a new way for a new purpose. Heretofore the word "pile" or "piling" has always implied a structure of more or less permanency, that is, one installed by the use of a pile driver, and therefore permanent in fact, even though only for temporary use, since the piles could only be removed by expensive and difficult means such as the application of considerable force in drawing them, and no piling structure, therefore, could be set up and easily removed as many times as desired. A great length of the Clarke temporary wall may, on the other hand, be installed and removed in a few hours, the rate of speed depending only on the number of men and the equipment employed in setting the piles in the slot or in removing them.



FIGS.—1 AND 2.—SECTIONAL ELEVATION AND PLAN OF CLARKE PILING FOUNDATION.

## An Automatic Can Weigher

An ingenious device which automatically weighs canned packages, separating those under weight, is being manufactured by the Smith Cannery Machines Co., of Seattle, Wash., and, it is said, fills a long felt want in the salmon canning industry. The pure food laws of the past few years require that all packages must be of full weight and that the weight must be indicated on the label. Heretofore this weighing has been done slowly and expensively by hand. Cans are fed into the machine shown in the halftone, on an endless belt at the rate of 84 per minute. Each can is separately weighed, those that are of full weight passing on and out down the belt, while the lightweight cans are set aside to be refilled. The machine is so adjusted that cans which fall one-eighth of an ounce below standard are detected and thrown aside. The mechanism of the machine is waterproof and can be washed down in the same way as the rest of the canning machinery. The weigher is placed between the "filler" and the "topper," and is proving almost as great a saving in handling the many millions of salmon cans annually put up as the "iron chink," the machine that superseded hand cleaning, itself.



AUTOMATIC CAN WEIGHING MACHINE.

## THE INSPECTION OF IRON, STEEL AND BRASS CASTINGS.

(Continued from Page 922.)

could have governed the work accordingly when making the patterns, as well as when issuing the necessary instructions to the different departments. I have found that both expense and trouble have been saved by following this plan, but I do not wish to convey the idea that the manufacturer should request the inspector to check patterns.

The inspector should be glad of an opportunity to check sample castings, but never to check patterns, as he is not familiar with the shrinkages of the metal, nor the methods of molding at any one plant, as he is interested only in the finished product.

### Gaging Patterns.

An instance that comes to mind concerns two castings, the one fitting into the other when in service. The top casting was made by one firm while the bottom casting was made by another. Both manufacturers were notified that the castings must fit certain gages and must come within certain limits. The sample casting for the top was made and found to agree with the gage. When the sample casting for the bottom was made it was found too small to allow the gage to enter. The manufacturer showed the inspector an order for 500 castings of the same design that had just been completed. They had been inspected and accepted, but had not been gaged. The patterns had not yet been taken from the sand and were then running on this order. As no objection had been raised by the parties assembling the 500 castings, it was assumed that the castings were being fitted without any trouble and therefore, there was no reason for changing the patterns to agree with these gages. It was conceded by the foundryman that the measurements were a little under the blue print size. The difference was about 3/32 inch in a length of 12 or 15 inches, but this was so small in his opinion that no trouble would be experienced. When it was explained by the inspector that all castings of that design must fit the required gages so as to allow castings from different foundries to be assembled, and all be standard, it was finally agreed that one or two patterns would be changed so that castings to be shipped on this inspector's order would fit the gages and be acceptable to him. The manager and inspector then returned to the office, where a telegram was awaiting the manager advising him that the 500 castings shipped on the previous order could not be used as they were too small in the dimensions covered by the gage. It is needless to say that orders were immediately given to change all patterns to agree with the inspector's gage, and a duplicate gage was made for the foundry to avoid any similar mistakes in the future.

### Details on Drawings.

The drawings should be made to show clearly every detail necessary to guide the manufacturer in producing a casting as well as for the information of the inspector. Often it is necessary to show the use of a particular part, as for instance, in making a type of cast steel box form bolster, ¾ inch holes were shown. The inspector found the shop busy reaming these holes to an exact ¾ inch. They were drain holes only, and should have been so marked on the drawing.

When castings are made to specifications prescribing test coupons for physical tests, especially in cast steel work, the inspector should see that these coupons represent truly the casting from which they were taken, and that they have not been given any additional reatment either by hammering, annealing or other wise. It is common practice for most inspectors to have a hammer with private mark for stamping coupons and accepted castings, but the inspector should use judgment in the different shops, in the method of handling the test coupons after they have been selected and stamped.

### Test Coupons on Steel Castings.

Specifications covering steel castings, in all cases, require that test coupons must be cast on the castings and broken off in the presence of the inspector. It is important to know on what part of the casting and the manner in which this coupon is attached to the casting, so that the results obtained will fairly represent the material. I have in mind castings weighing 15 tons each that had coupons attached, made by the molder pressing a round stick in the bottom of the drag after the pattern was drawn and the mold ready to close. This stick was 1½ inches in diameter and was pressed about 4 inches in the sand at right angles to the casting, and no allowance was made for the gas to escape. The mold was gated at the bottom and the metal running over the bottom of the mold had pushed all the dirt and loose sand down these holes.

Tests and analyses made from these coupons did not represent the material in these castings. Very few bars were found without flaws and other test pieces selected from the runner of the gate and from the castings taken with a hollow drill did not agree either in physical tests or chemical composition with the results obtained from the test coupons.

The inspection of steel castings calls for the most careful work on the part of an inspector as it is exceedingly difficult to distinguish between a mere blemish and a real defect. One casting will be spongy and porous on the surface but all holes will be small and shallow and will not affect its strength, while another casting will, to all appearances, have a smooth surface with the exception of a few small holes, which, when explored, will increase in width and volume with the depth, and the casting will be found to be only a shell.

### Blow-Holes.

The volume or area of blow-holes is often determined by the amount of water the cavity will hold. This test is an old one and it would be well to caution the inspector before making this test to be certain that the cavity has not been filled previous to testing.

A number of years ago a workman in a foundry, appreciating the prying curiosity of the inspector, filled the blow-holes with hot wax to nearly the top of the surface and when tried with water, the inspector found only a shallow cavity. In another case a workman was found busily filling shrinkage cracks in the fillet of a large steel casting with a metallic substance, which was put in the crack in a soft condition. The crack was filled to the surface and burnt sand was rammed as a top dressing. The result was, indeed, a work of art. These methods and many others were used a number of years ago to have castings accepted by the inspector, but it has been found cheaper and better for all concerned to so improve shop methods that defective castings will be reduced to a minimum.

In another instance a specification rigidly prescribed a mixture of certain pig irons, scrap, etc. The inspector always arrived at the shop at a certain time and, unknown to him, his entrance at the gate was always announced to the charging gang; he

generally proceeded immediately to the charging floor, where he found a number of buggies loaded with the prescribed mixture—a certain percentage of charcoal iron, coke iron, scrap, etc.—and while he was present one or two of these loads were dumped into the cupola. This seemed to satisfy him, and he would proceed to other parts of the shop. The buggies charged while he was on the floor were all that were charged each day of that specified mixture, the others were held for his visit the next day, and the work proceeded according to the personal theories of the foreman.

### Inspecting Brass Castings.

When inspecting brass or bronze castings, aside from the tests and analyses specified, the inspector should break a few castings from each day's work. This will enable him to obtain an idea of the structure of the material and it will give him an idea of how well the metals have been mixed. Any segregation, or soft and porous spots, will be detected, which is important in castings used for bearings, as any segregation generally develops a hard spot, while soft or porous spots act as a catch-all for dirt, causing unequal wear or hot journals.

On brass or bronze castings used for interior decorations it is necessary to pay particular attention to the color of the metal so that it is uniform. On one order for racks and fixtures used on cars the mixture was specified so as to insure a certain shade. On some of the fixtures the castings were to be brazed with rolled metal. Orders were placed with three different makers, two of them succeeded in purchasing rolled material similar in color to the castings, but the third depended upon using yellow brass, which he plated and expected to obtain the desired shade. The inspector had been furnished with a sample piece of the composition and color desired. As each strip of rolled material had been separately plated, a difference was noted immediately.

### Inspection of Iron Castings.

On iron castings, particular attention must be paid to the thickness of sections. These are generally designed for a certain pressure, as pipe and pipe fittings, or to bear certain loads, as car wheels, etc. The thicknesses of sections and walls have been worked out when the castings were designed to give the desired strength with a certain pressure or load. Any deviation in these thicknesses, especially on the low side, is apt to cause a failure in service and is not what the purchaser pays for, nor has a reasonable right to expect. On a large casting, it is the best practice for the inspector to be at the foundry when the mold is closed and to witness the pouring.

A few years ago I saw the base of a steam hammer that had broken in service. It weighed approximately 10 tons and had been in use about four months. The failure was due to the fact that the center of the mold had been filled with bolts, nuts, washers and other scrap, which had been anchored in the mold in some manner that held this material central while the mold was filled with the molten iron. From outward appearances the casting was solid.

In the matter of tests, these are generally covered by the specifications, and it is the inspector's duty to know that the tests he selects are as nearly representative of the material in the castings, as it is possible for him to obtain.

### The Inspector.

An inspector should be amiable, have good sense mixed with sound judgment, and be a gentleman at all times. I have known instances where castings, with small defects, were rejected and thrown aside by workmen without asking the inspector to pass upon them, because he was well liked in the shop, and the employes would not offer castings to him which they considered doubtful. In other cases, when the inspector has not been so agreeable, every casting was offered to him and the work of inspection made as hard as possible.

There is no question but that it is the manufacturer's right to decide the manner in which the castings are to be made, but it is also the right of the inspector to pass upon the castings after they are finished, and it is his judgment that must decide whether they meet requirements, and are good enough for the purpose intended. By getting together before an order is commenced, or by making a few sample castings, much annoyance, for both the manufacturer and the inspector, can generally be avoided.

When the mixture has not been specified in the contract the manufacturer has the right to decide the kind of material to use in making his steel, iron or bronze and the process of manufacture, but the inspector must decide whether the castings are of the grade of material desired, and if they meet the specifications under which they were purchased.

## Iron and Steel Cut and Wire Nails in 1909.

The American Iron and Steel Association has received from the manufacturers detailed statistics of the production of iron and steel cut and wire nails in the United States in 1909.

*Cut Nails.*—The statistics for iron and steel cut nails and cut spikes embrace only standard sizes of nails and spikes cut from plates. They do not embrace railroad and other forged spikes, wire nails of any size, machine-made horseshoe nails, cut tacks, or hob, clout, basket, shoe, or other small sizes of nails. Cut spikes are always included with cut nails.

The production of cut nails and cut spikes in 1909 amounted to 1,207,597 kegs of 100 pounds each, against 956,182 kegs in 1908, an increase of 251,415 kegs, or over 26.2 per cent.

In 1909, over 74.5 per cent of the total production was cut from steel plate and a little less than 25.5 per cent was cut from iron plate, while in 1908 over 67.5 per cent was cut from steel plate and a little less than 32.5 per cent from iron plate. The maximum production of iron and steel cut nails and cut spikes was reached in 1886, when 8,160,973 kegs were made.

Thirteen works in six states made cut nails in 1909, as compared with 14 works in seven states in 1908. Eight works were idle in 1909.

In 1909 our exports of cut nails and cut spikes amounted to 22,256,458 pounds, or 222,565 kegs of 100 pounds, against 15 731,898 pounds, or 157,319 kegs, in 1908. Our imports of cut nails and cut spikes are only nominal.

*Wire Nails.* — The production of wire nails in 1909 amounted to 13,725,053 kegs of 100 pounds, as compared with 10,662,972 kegs in 1908, an increase of 3,062,081 kegs, or over 28.7 per cent. Steel wire nails only were made in both years. The maximum production was reached in 1909. The year of next largest production was 1904, when 11,926,661 kegs were made.

The wire nails produced in 1909 were made by 44 works in 13 states, as compared with 41 works in 13 states in 1908. In 1909 there were five idle wire nail plants, against 14 in 1908. A number of plants were abandoned in 1909.

Our exports of wire nails in 1909 amounted to 68,668,654 pounds, or 686,687 kegs, against 59,381,946 pounds, or 593,819 kegs in 1908. We import very few iron or steel wire nails.